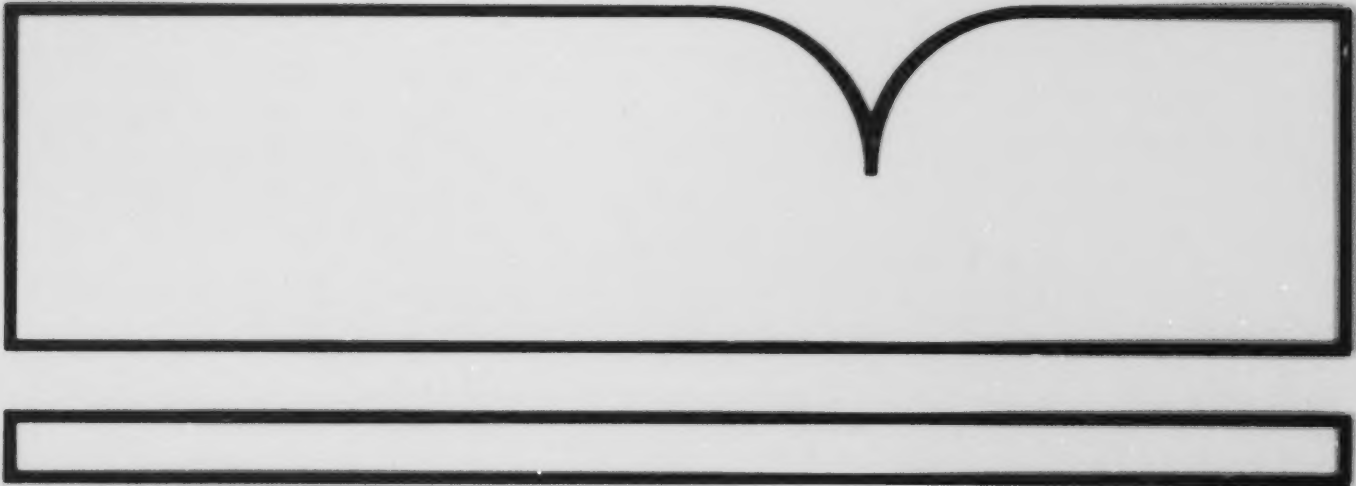


Criteria for Municipal Solid Waste Landfills
(40 CFR Part 258). Subtitle D of Resource
Conservation and Recovery Act (RCRA)
Closure/Post-Closure Care and Financial
Responsibility Requirements (Subpart C
Sections 258.30 through 258.32)

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**CLOSURE/POST-CLOSURE CARE
AND FINANCIAL RESPONSIBILITY
REQUIREMENTS
(SUBPART C, §§258.30 - 258.32)**

**"CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS"
(40 CFR PART 258)**

**SUBTITLE D OF RESOURCE CONSERVATION AND
RECOVERY ACT (RCRA)**

**U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SOLID WASTE**

JULY 1988

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1. BACKGROUND FOR CLOSURE AND POST-CLOSURE CARE AND FINANCIAL ASSURANCE CRITERIA

1.1 HAZARDOUS AND SOLID WASTE AMENDMENTS (HSWA) PROVISIONS FOR MUNICIPAL SOLID WASTE LANDFILLS

Under the Hazardous and Solid Waste Amendments of 1984 (HSWA), EPA must revise the existing Federal criteria for municipal solid waste landfills (MSWLFs) that may receive hazardous waste from households or small quantity generators. The Agency has determined that these revised criteria should include requirements for new and existing MSWLFs, including closure and post-closure care requirements, and financial assurance requirements for closure, post-closure care, and corrective action for known releases.

1.2 RATIONALE FOR CLOSURE, POST-CLOSURE CARE AND FINANCIAL ASSURANCE CRITERIA

MSWLFs are authorized to receive household hazardous wastes and hazardous waste from small quantity generators. Since many of these MSWLFs were constructed with minimal consideration of location and engineering design, there is a risk that a release of hazardous constituents from these landfills may present a risk of harm to human health and the environment after they have ceased operation, even many years after closure.

In many areas of the country, for example, unless rainwater infiltration into a closed landfill is controlled, leachate forms and is eventually released into the environment. If such a closed landfill is located in close proximity to usable groundwater or surface water, the release of contaminants containing hazardous constituents into these media is inevitable.

EPA believes that closure is extremely important in protecting the public and the environment from contamination by hazardous wastes. The limited data available indicate that MSWLFs have received hazardous wastes even though they often were not designed to manage these wastes in an environmentally sound manner. Many of the MSWLFs do not have liners or leachate collection systems, and are located in poor hydrogeological settings (e.g., shallow ground water, highly permeable soils, high net water infiltration, and high ground-water flow rates).¹

The available information also indicates that many States already require some measures to be taken at facility closure to prevent contaminant escape, though the measures may not have been designed to prevent releases of hazardous constituents.² Due to poor location and facility design, however, the closure measures performed at MSWLFs were often not effective in preventing releases of hazardous constituents in various concentrations, including inorganic and organic compounds. The Agency therefore believes that stringent closure standards are essential to ensure that MSWLFs are closed in a manner that minimizes the post-closure escape of contaminants and protects human health and the environment. Moreover, the Agency believes that standards for maintaining landfills after closure to prevent deterioration that could lead to threats to human health and the environment are also important.

The Agency also believes that financial assurance requirements are necessary to cover the costs of closure, post-closure care, and corrective

¹ See U.S. Environmental Protection Agency, "Subtitle D Study Phase I Report," Office of Solid Waste, EPA/530-SW-86-054, October 1986.

² See ICF Incorporated, "Survey of State Closure and Post-Closure Care Regulations for Solid Waste Facilities," Draft, May 1987.

action. Financial assurance requirements ensure that funds will be available for these activities if an owner or operator of a MSWLF fails to pay for them due to bankruptcy, abandonment of the facility, or any other reason. The requirements also encourage owners or operators to properly plan for the resources needed to perform closure, post-closure care and corrective action.

1.3 ORGANIZATION OF DOCUMENT

This document supplements the preamble to the proposed Subtitle D criteria by presenting additional information used by the Agency in developing today's proposed closure, post-closure care and financial responsibility criteria. Chapter 2 addresses in more detail the proposed closure and post-closure care criteria in §§258.30 and 258.31. Chapters 3 and 4 discuss the financial responsibility criteria proposed in §258.32. Chapter 3 discusses the proposed cost estimating provisions and criteria for demonstrating financial responsibility. Chapter 4 discusses financial assurance mechanisms that may be available to owners or operators of MSWLFs.

2. CLOSURE AND POST-CLOSURE CARE STANDARDS

2.1 INTRODUCTION

The primary purpose of the proposed closure and post-closure care standards under Subtitle D is to establish the minimum Federal standards necessary to ensure protection of human health and the environment after operations have ceased at MSWLFs. The closure and post-closure care criteria in the proposal are designed to achieve that goal by providing for the minimization of the formation and release of leachate and explosive gases as part of the site-specific closure requirements, and by providing for post-closure monitoring and maintenance requirements to protect against damages caused by age and deterioration of the MSWLF after closure. In addition, the proposed closure and post-closure care criteria require owners or operators of MSWLFs to plan for their future closure and post-closure care obligations to ensure that adequate preparations and resources are available when needed.

Because the Subtitle D program is to be implemented by the States, one objective of these criteria is to minimize inconsistencies between the Federal closure and post-closure care requirements and State program requirements that are already in place or are now being developed. In addition, EPA recognized that requirements under existing State programs and State implementation experience would provide useful insight for developing the Federal Subtitle D program. Therefore, in developing the revised closure and post-closure care criteria, the Agency reviewed all State solid waste regulations, and selected nine States for more extensive review.

The States selected for case study were California, Florida, Louisiana, Maryland, New York, Oregon, Texas, Washington, and Wisconsin.³ Officials responsible for implementing the closure and post-closure care requirements in these States were interviewed by telephone to obtain additional information on the general scope of their closure and post-closure programs, the rationale used in developing program requirements, and their implementation experience. The following considerations were used to select these States:

- Scope of the closure and post-closure care requirements. The States chosen generally have comprehensive programs;
- Length of the post-closure care period. The case studies selected represent a range of post-closure care periods; and
- Number of municipal solid waste landfills in the State. Five of the States chosen (California, Louisiana, New York, Texas, and Wisconsin) represent a relatively large percentage of the total number of U.S. landfills.⁴

Section 2.2 discusses the proposed closure performance standard, Section 2.3 addresses post-closure care requirements and Sections 2.4 and 2.5 describe the proposed closure and post-closure procedural requirements (i.e., closure and post-closure plans and certification requirements).

³ See ICF Incorporated, "Survey of State Closure and Post-Closure Care Regulations for Solid Waste Facilities," Draft, May 1987.

⁴ See U.S. Environmental Protection Agency, "Census of State and Territorial Subtitle D Non-Hazardous Waste Programs," Office of Solid Waste, EPA/530-SW-86-039, October 1986.

2.2 CLOSURE PERFORMANCE STANDARDS

The proposed closure performance standard under Subtitle D provides a general requirement for ensuring that closure is effectively performed, similar to the performance standard for closure under Subtitle C for hazardous waste facilities. The standard specifies the objectives that closure must achieve, but not the particular activities or methods for attaining that end.

2.2.1 Provisions of Performance Standard

The closure performance standard proposed in §258.30(a) for MSWLFs establishes preventative measures designed to minimize threats to human health and the environment. The MSWLF facility owner or operator must close the facility in a manner that minimizes the need for further maintenance and minimizes the release of leachate and explosive gases to the air, ground water or surface water after closure to the extent necessary to protect human health and the environment. The closure performance standard provides flexibility for owners or operators and the States to determine the specific steps necessary to achieve these general environmental goals based on site-specific conditions. In addition, the Agency is proposing a risk-based performance standard for the final cover design, specified in §258.40. The final cover performance standard specifies the expected achievement of the final cover, although it does not provide technical design specifications. This risk-based performance standard is addressed in detail in the Background Document for Subtitle D design criteria for MSWLFs.

2.2.2 Triggers for Closure

To ensure that landfill units are closed in a timely manner after operations at the unit have ceased and to protect against threats to human health and the environment posed by open but inactive landfills, the Agency is requiring in §258.30(d) that owners or operators must begin closure activities at each unit, in accordance with the approved closure plan, no later than 30 days after the final receipt of wastes at each landfill unit. Extensions may be granted at the discretion of the State, if the owner or operator of the MSWLF demonstrates that the open landfill unit will not pose a threat to human health or the environment. These closure trigger provisions in §258.30(d) are consistent with the closure trigger mechanisms for hazardous waste facilities under Subtitle C. States may wish to refer to the language in 40 CFR Parts 264 and 265, Subpart G as guidance for developing more detailed provisions.

The Agency encourages States to define "final receipt of wastes" to preclude landfill units from remaining inactive for an indefinite period of time without closing. For example, States may wish to adopt the provisions applicable to hazardous waste facilities that specify that closure must begin no later than 30 days after the final receipt of hazardous wastes, or no later than one year after the most recent receipt of hazardous wastes. Furthermore, States are encouraged to establish specific criteria for granting extensions to the deadline for beginning closure. For example, the Subtitle C regulations for hazardous waste facilities specify that an extension will be granted only if the owner or operator demonstrates that, among other requirements, the facility has

remaining capacity, and the owner or operator is operating in compliance with all applicable regulations and will continue to do so.

As noted above, the Agency is allowing the States to develop their own procedural requirements, including provisions for owners or operators to notify the States of their intent to close a landfill unit. States are encouraged to establish notification requirements that provide them with sufficient advance notice to inspect the facility and to ensure that the approved closure plan is still applicable to the facility's current conditions. States may wish to adopt the notification provisions included in the Subtitle C regulations, which require advance notice prior to closure of each unit of the landfill. Particularly if States allow owners or operators to gradually fund trust funds as demonstration of financial assurance (See Section 4.1 below), notice of closure is important to ensure that the trust fund is fully funded at least by the time closure is triggered. For example, Subtitle C requires an estimate of the expected year of closure to be included in the closure plan if the owner or operator expects to close the landfill prior to the end of the required trust fund pay-in period.

While the proposed criteria specify when closure must begin, the Agency is not proposing deadlines for completing closure of a landfill unit. However, the Agency is concerned that the completion of closure not be delayed unnecessarily and is encouraging States to specify deadlines and interim milestones. For example, the Subtitle C regulations for hazardous waste facilities specify a 180-day deadline for completing closure and an interim milestone of 90 days for managing all inventory at the site. Extensions to these deadlines may be granted if (1) the closure

activities will take longer than 180 days to complete, or (2) there is a reasonable likelihood that the owner or operator or a person other than the owner or operator will recommence operation of the facility, the landfill has additional capacity to receive waste, and closure would be incompatible with continued operation of the facility. In all cases, if an extension for completing closure is granted, the owner or operator of a Subtitle C facility remains subject to all applicable permit requirements and must take all the necessary steps to ensure protection of human health and the environment.

2.2.3 Options Considered and Rejected

The Agency considered two other options when determining what types of standards should be used to establish the closure standard. One option was to specify a set of stringent technical closure standards. Technical standards provide certainty to the regulated community regarding design requirements and ensure a consistent level of technology. In addition, there are regulatory precedents in Subtitle C for landfill design specifications. However, specifying technical closure standards does not allow for rapid adoption of innovative technical approaches and may unnecessarily require installation of designs that go beyond techniques needed to protect health and the environment. In addition, such a standard may not account for design responses to all facility or environmental conditions and therefore may not adequately protect health and the environment. Finally, specifying a detailed design standard is inconsistent with the overall goal of providing flexibility to the States.

Second, the Agency considered specifying a more stringent performance standard that would require owners or operators of a MSWLF to close the landfill in a manner that prevents all releases from the landfill, regardless of the potential threat to human health and the environment. Specifying a stringent performance standard would allow for rapid incorporation of technological advances in closure design, would provide maximum flexibility to the owner or operator and regulators to determine the most appropriate closure technical design to satisfy the performance standard based on site-specific conditions, and would ensure a consistent achievement of a specific level of environmental protection among landfills undergoing closure. The Agency, however, was concerned that a closure performance standard requiring prevention of all releases may be unnecessarily stringent for low-risk facilities. The Agency therefore is proposing a performance standard designed to minimize threats to human health and the environment, thereby allowing risk factors to be taken into account when closing MSWLFs.

2.2.4 Comparison with Subtitle C

Like the closure performance standard specified in the Subtitle C regulations (see 40 CFR 264.111 and 265.111), the proposed closure performance standard for MSWLFs allows owners or operators to incorporate site-specific considerations in determining the type of closure activities that will satisfy the standard. Subtitle C, however, also specifies process-specific technical closure standards (e.g., strict design standards for the final cover) in addition to a performance standard. The Agency has decided not to specify technical closure design standards for

MSWLFs in order to allow States maximum flexibility in developing Subtitle D programs.

2.2.5 Consistency with State Requirements

Of the nine States surveyed, only Washington includes both a closure performance standard and design standards in their closure rules. Prior to 1985, Washington's solid waste regulations specified only a performance standard. However, due to difficulties in implementing such a standard, the State revised the regulations to include design standards as well. Washington's current performance standard also requires the owner or operator to return the land to the appearance and use of surrounding areas and to continue monitoring all media as long as necessary for the waste to stabilize and to protect human health and the environment.

Although the remaining States surveyed do not include design standards, each of them requires the owner or operator to perform specific technical activities during the closure process. For example, each of the States requires at least a final cover and grading, and some also require revegetation of the cover and drainage of the landfill. Therefore, the Agency believes that requiring a performance-based standard and final cover requirement will not be inconsistent with State programs.

2.3 POST-CLOSURE CARE STANDARDS

The post-closure care activities under §258.31 of the proposed criteria are similar in intent to the post-closure care requirements under the Subtitle C regulations. Post-closure care is intended to control the formation of leachate containing hazardous constituents and its release

into the environment after closure of the MSWLF, as well as to minimize the formation of explosive gases that collect in the landfill system. The criteria propose that post-closure care be carried out in two phases, with the initial phase lasting for 30 years and a second, less intensive phase to be defined by the States.

2.3.1 Types of Activities Required

The proposed criteria in §258.31(a) define the minimum activities that must be performed following the completion of closure during each phase of post-closure care. Specifically, the proposed criteria require owners or operators of MSWLFs to perform routine maintenance and monitoring activities for the final cover, leachate collection system, ground-water monitoring system, and gas monitoring programs during the first phase of post-closure care. During the second phase of care, owners or operators must, at a minimum, continue to operate their ground-water monitoring and gas monitoring systems in order to detect any contamination that might occur after the initial post-closure care period. This second phase is intended to ensure that a minimum level of care is continued at a MSWLF to detect any release that might occur in the long term, while minimizing the burden on owners or operators of continuing extensive post-closure care activities for an extended period of time.

Generally, the post-closure care period at the MSWLF facility is intended to minimize releases of hazardous constituents from a MSWLF after closure of the facility by prescribing routine maintenance and monitoring activities, and to detect as early as possible any releases that do occur. For example, maintaining the integrity and effectiveness of the cover may

include mowing and replanting of the vegetative cover, repairing the cap, and correcting the effects of erosion. These activities are designed to prevent the net infiltration of rainwater through the final cover and into the waste after closure of the unit. If the final cover is properly maintained, evaporation and plant transpiration of the rainwater should occur before water has the opportunity to infiltrate the waste and cause leachate formation. Moreover, correction of the effects resulting from settling, subsidence and erosion will help maintain the integrity of the final cover, and will provide an incentive to the owner or operator to properly place and compact the waste during the operation of the MSWLF. The specific activities that will be necessary to maintain the integrity of the containment system will depend in part on the site-specific nature of the final cover material and environmental conditions.

Operating and maintaining the leachate collection system at MSWLFs with liners until leachate is no longer generated is required to protect surface water from the "bathtub effect," i.e., leachate collecting on top of the liner. Routine ground-water monitoring is necessary to detect ground-water contamination in a timely fashion should the waste containment structures fail or a design or operating error occur. Likewise, the gas monitoring program serves to ensure that explosive gases, such as methane gas, generated by the landfill do not accumulate in landfill structures in concentrations in excess of 25 percent of the lower explosive limit (LEL) for the gases, as specified in §258.23.

The proposed criteria also restrict the post-closure use of landfill property by specifying that after closure, the use of the property must never be allowed to disturb the integrity of the final cover, liner(s),

any components of the containment system, or the function of the monitoring system unless it can be demonstrated that these uses will not pose a potential threat to human health and the environment, or that such disturbance is necessary to reduce a threat to human health and the environment. The objective of the restrictions on the post-closure use of the property is to ensure that the post-closure care requirements can be implemented effectively in a manner protective of human health and the environment. For example, disturbing the integrity of the final cover could increase potential leachate migration and pose a potential risk of harm to human health and the environment. Interference with the operation of the monitoring systems could prevent timely detection of ground-water contamination or excessive releases of methane gas. Unmonitored access to the property after closure also could result in the release of hazardous constituents or actual exposure of buried wastes as a result of disturbances of the site.

2.3.2 Length of the Post-Closure Care Period

Section 258.31(b) proposes to require a two-phase post-closure care period for all MSWLFs. The initial period must last for a minimum of 30 years and consist of extensive post-closure activities described in the previous section. The duration of the second phase, which requires less intensive post-closure activity, must be determined by the States. Based on limited data on the rate of deterioration of containment systems coupled with improvements in containment technologies that will delay their deterioration and thus delay releases, the Agency believes that this two-phased post-closure care period is warranted to ensure long-term protection of human health and the environment.

The rationale for the proposed post-closure care period at MSWLFs is based in part on the results reported in the Regulatory Impact Analysis (RIA) conducted by the Agency for the proposed criteria.⁵ The RIA assessed the risk to human health and the environment posed by solid waste management at MSWLFs. The analysis concluded that post-closure formation of leachate and its transport in ground water, combined with a lack of ground-water monitoring, could lead to significant levels of contamination of drinking water supplies around MSWLFs. This contamination could, in turn, pose significant risks to human health and the environment. Hence, the aim of the two-phased post-closure care requirement is to:

(1) maintain the integrity of the landfill's final cover and other containment structures to prevent the formation of leachate for an initial 30-year period, and (2) continue ground-water and gas monitoring during

⁵ Draft Regulatory Impact Analysis of Proposed Revisions to Subtitle D Criteria for Municipal Solid Waste Landfills. June 22, 1987. Prepared for Economic Analysis Staff, Office of Solid Waste/EPA.

and beyond the initial 30-year period to ensure that migration of leachate and collection of explosive gases can be detected prior to posing a threat to human health and the environment.

Once a unit is closed, the bottom liner of the landfill will deteriorate over time and, consequently, will not prevent the transport of leachate out of the unit. Therefore, the only way to prevent leachate transport is by preventing leachate formation through preservation of the landfill cover. Although some leachate will be formed during the active life of a landfill unit, the RIA noted that the design and operating standards imposed by the proposed criteria will limit the amount of leachate released from the landfills. However, in the absence of post-closure care to maintain the cover, the cover will deteriorate and leachate can form following closure in sufficient quantities to pose a threat to human health and the environment.

The types of activities required and the duration of these activities could vary significantly among facilities depending on location and design. For example, the RIA estimated that a synthetic membrane, which might be required at some MSWLFs to satisfy the health-based limit performance standard, will deteriorate in 35 years. Therefore, in the absence of a long post-closure care period (i.e., significantly beyond 35 years), the impermeable properties of the membrane can be expected to decrease, thereby increasing leachate formation and potential threats to human health and the environment. On the other hand, at a facility designed with a vegetative cover, the Agency expects that over time the cover will become more protective as a result of factors such as the solid establishment of vegetation, the cessation of settling and subsidence, and

the general stabilization and proven integrity of the cover. For this type of cover, maintenance activities in the early years of the post-closure care period could be extensive, but should become increasingly less extensive over the duration of the period to achieve the same level of protection to human health and the environment.

As discussed earlier, the Agency believes that extended ground-water and gas monitoring are essential complements to the maintenance requirements for protecting human health and the environment. Final cover permeability and the need for monitoring, subject to site-specific conditions, will most likely have an inverse relationship. That is, the more impermeable the final cover, the less the need for extensive monitoring, and conversely, the less impermeable the cover, the more monitoring that will be required.

The Agency anticipates that in the first phase of the post-closure care period, semiannual monitoring, consistent with the operating life requirements, and routine cover maintenance (e.g., periodic mowing, fertilizing, vector control, soil replacement) would be appropriate at most MSWLFs. In later years, however, the Agency expects that at most facilities only minimal care will be required. Thus, during the second phase of post-closure care, annual monitoring with reduced cover maintenance, for example, may be adequate to protect human health and the environment. If more intensive activities are warranted at a particular facility during later years, States have the authority to require extensive care during this second phase as well.

The specific timing and nature of post-closure care activities will vary on a site-by-site basis. As discussed earlier in this document, the

Subtitle D program is designed to be handled by the States. Therefore, the development and implementation of specific procedures for determining both the start of the second, less-intensive phase of post-closure care and the appropriate nature and levels of continuing care during the second phase will be addressed by each State.

2.3.4 Comparison with Subtitle C

Generally, the post-closure care requirements in today's proposed criteria -- routine maintenance of the cover, collection of leachate, ground-water monitoring and restricted land use -- are similar to the activities required under the Subtitle C requirements for hazardous waste facilities (40 CFR 264.117 and 265.117). Unlike Subtitle C, however, today's criteria specifically require gas monitoring because of the inherent nature of MSWLFs. In addition, unlike Subtitle C, which requires deed notices and survey plats to be filed after closure of landfills (see 40 CFR 264.119), the proposed Subtitle D criteria require only a deed notation to be filed after closure.

The required post-closure care period for Subtitle C facilities is currently set at 30 years with a provision allowing extensions or reductions to the length of the period (see 40 CFR 264.117 and 265.117). While the requirement for two-phased post-closure care in the proposed criteria for MSWLFs is more stringent than the Subtitle C requirement, information collected since the promulgation of the Subtitle C requirements on May 19, 1980 (45 FR 33154) suggests that a longer post-closure care period may be necessary to protect human health and the

environment.⁶ The Agency is also currently considering extending the post-closure care requirements for Subtitle C facilities located in certain environments likely to pose significant threats to human health and the environment.

2.3.5 Consistency with State Programs

All of the nine States included in the Agency's case studies, except Maryland, specify the types of activities to be conducted during the post-closure care period. Under its current rules, Maryland may require post-closure care through the permit system on a case-by-case basis. Maryland recently proposed revised solid waste regulations that would specifically require post-closure care. The discussion of post-closure care requirements that follows includes Maryland's proposed regulations rather than its current regulations.

All of the States studied explicitly require either cover or site maintenance during the post-closure care period (e.g., maintenance to prevent and repair cracking, erosion, or settling of the cover, maintenance of the drainage system, and revegetation as needed). Monitoring requirements vary somewhat across the nine States examined. Most of the States reviewed either explicitly require leachate and gas control for all facilities or require them on a case-by-case basis. All of the State regulations studied contain some type of provision for ground-water monitoring. Six of the States studied (California, Florida, Louisiana, New York, Oregon, and Washington) require ground-water

⁶ Draft Regulatory Impact Analysis of Proposed Revisions to Subtitle D Criteria for Municipal Solid Waste Landfills. June 22, 1987. Prepared for Economic Analysis Staff, Office of Solid Waste/EPA.

monitoring for all MSWLFs; Wisconsin and Maryland require ground-water monitoring on a case-by-case basis; Texas requires that any monitoring programs, such as ground-water monitoring, in effect during the operating life of the facility shall be continued during post-closure care.

The level of control that the implementing agencies have over the post-closure use of MSWLFs varies across the nine States that the Agency reviewed. At a minimum, however, most of the States studied require a notation to the property deed indicating that the property was used as a MSWLF, so that future property owners will be aware of the need to maintain the structural integrity of the covered landfill. Some States (California, Florida, Maryland, and Texas) exercise control over the future land use explicitly by requiring that all proposed activities or construction be reviewed and approved by the State. The extent to which these States may effectively interfere with future land use, however, varies. Other States (Louisiana, New York, Wisconsin) do not include explicit provisions in their regulations to control post-closure land use at MSWLFs, but use their general authority to protect human health and the environment and their authority over post-closure plans to oversee post-closure land use. Based on these States, the Agency believes that the required post-closure care activities under the proposed criteria will not be inconsistent with existing State programs.

The Agency was particularly interested in how the States selected the length of the post-closure care period and in data that may be available to support a specific time period. As a result, the Agency reviewed all State programs. The results of this review are presented in Exhibit 2-1. The Agency survey indicated that forty-two States require post-closure

EXHIBIT 2-1

STATE POST-CLOSURE CARE REQUIREMENTS

STATE	POST-CLOSURE CARE BY REQUIRED	NO SPECIFIC POST- CLOSURE CARE PERIOD	1-4 YEARS	5-9 YEARS	10 YEARS	20/30 YEARS
Alabama	X					
Alaska					X	
Arizona						
Arkansas						
California			2 years	5 years (or longer as required by Board, enforce- ment agency, or Water Quality Control Board)		
Colorado		X				30 years (if monitoring is required by Depart- ment; if not, no post-closure care period)
Connecticut						
Delaware			2 years -- for necessary repairs	5 years -- for moni- toring (or longer as required)		
Florida						20 years (Department may extend period if necessary; owner or operator may apply for reduced term)
Georgia			1 year at least			
Hawaii			1 year at least			
Idaho			1 year			
Illinois			3 years			

EXHIBIT 2-1 (continued)

STATE POST-CLOSURE CARE REQUIREMENTS

STATE	POST-CLOSURE CARE BY REQUIRED	NO SPECIFIC POST- CLOSURE CARE PERIOD	LENGTH OF POST-CLOSURE CARE PERIOD			
			1-4 YEARS	5-9 YEARS	10 YEARS	20/30 YEARS
Indiana (proposal)				5 years (for facilities closed before effective date)	X (or 5 years if petition by permit- tee is granted)	
Iowa				5 years		
Kansas					X (Department may specify additional periods as deemed necessary to pro- tect public health or welfare or the environment)	
Kentucky			2 years			
Louisiana			3 years (or longer if deemed necessary on a site- specific basis)			
Maine			1 year -- inspec- tions (and for reasonable period thereafter for maintenance)			
Maryland	X					
Massachusetts			1 year			
Michigan				5 years		
Minnesota		X				
Mississippi			1 year (additional post- closure care as determined necessary by Department)			

EXHIBIT 2-1 (continued)

STATE POST-CLOSURE CARE REQUIREMENTS

STATE	POST-CLOSURE CARE NOT REQUIRED	NO SPECIFIC POST- CLOSURE CARE PERIOD	LENGTH OF POST-CLOSURE CARE PERIOD			30 years (variances by deter- mination of Depart- ment; anyone may petition for a variance)
			1-4 YEARS	5-9 YEARS	10 YEARS	
Missouri		X (as necessary during and following active operation)				
Montana	X					
Nebraska		X (as necessary during and following active operation)				
Nevada		X (exemptions allowed for certain facilities)				
New Hampshire		X (as specified in closure plan)				
New Jersey						
New Mexico	X					
New York						
North Carolina		X ("future necessary main- tenance and water qual- ity monitoring shall be the responsibility of the owner;" permit, however, is terminated when the site is adequately closed)				
				5 years (or longer as specified by Department)		

EXHIBIT 2-1 (continued)

STATE POST-CLOSURE CARE REQUIREMENTS

STATE	POST-CLOSURE CARE NOT REQUIRED	NO SPECIFIC POST- CLOSURE CARE PERIOD	LENGTH OF POST-CLOSURE CARE PERIOD		
			1-4 YEARS	5-9 YEARS	10 YEARS 20/30 YEARS
North Dakota	X				
Ohio					
Oklahoma			3 years (continued leachate monitoring beyond 3 years required as determined necessary by Agency)		
Oregon				8 years minimum (Department inspects annually for 8 years)	
Pennsylvania		X (until vegetation established to pre- vent corrosion)			X (Department may extend or reduce period as needed; permittee may request extension or reduction)
Rhode Island		X			
South Carolina		X (inspections for period necessary to assure satisfactory land recovery; monitoring every 3 months if deemed necessary by Board of Health)			
South Dakota		X (until site has set- tled and no filling or draining problems exist)			
Tennessee				1 year	

EXHIBIT 2-1 (continued)

STATE POST-CLOSURE CARE REQUIREMENTS

STATE	POST-CLOSURE CARE NOT PROVIDED	NO SPECIFIC POST- CLOSURE CARE PERIOD	LENGTH OF POST-CLOSURE CARE PERIOD		
			1-4 YEARS	5-9 YEARS	10 YEARS 20/30 YEARS
Texas				5 years at least (if problems persist beyond 5 years, the operator is respon- sible for correction until Department determines that problems are ade- quately resolved)	
Utah	X				
Vermont			1 year		
Virginia	X				
Washington		X (until site becomes stabilized and mon- itoring can be safely discontinued)			
West Virginia	X				
Wisconsin					30 years (20 years if approved by Department.)
Wyoming			3 years -- necessary cover repair	5 years -- for gas/ leachate control	

care, but that the length of the period specified by each of the States varies widely. While four States require post-closure care for up to 30 years, most States require care periods of less than five years.

2.3.6 Options Considered and Rejected

The Agency considered setting the length of the post-closure care period at 30 years with the option to reduce or extend the period, consistent with the approach taken in Subtitle C. As indicated above, information included in the RIA for the proposed criteria suggests that a period longer than 30 years is warranted, particularly in light of improvements in containment technology that have the effect of delaying releases. The Agency also considered making the post-closure care period consistent with some of the periods specified in existing State programs (e.g., 5, 10, or 20 years). Although the Agency acknowledges that no other State or Federal authority currently requires a two-phased post-closure care period, the Agency has no data to support these shorter periods. The results of the survey of State requirements suggest that the lengths of the State periods were generally set as a result of political considerations, economic considerations, or professional judgment. No State reported using empirical data or predictive models to determine an appropriate length for the post-closure care period. Therefore, the Agency does not believe the existence of shorter post-closure care periods in the States is a persuasive reason for limiting the requirement in the proposed rule. Moreover, based on the data available, the Agency believes that a minimum 30-year period and a second phase specified by the State is necessary to protect human health and the environment. Finally, the

Agency considered requiring an extended post-closure care period with an option to reduce the period only if the owner or operator could demonstrate that a reduction in the period would not pose any potential threat to human health and the environment. The Agency determined that extended care would create an unreasonable burden on the States to establish criteria for terminating post-closure care and on owners or operators to demonstrate that post-closure care activities were no longer needed.

2.4 CLOSURE AND POST-CLOSURE PLANS

To ensure that the owner or operator has prepared for activities needed to close a MSWLF facility in accordance with the closure performance standard, and to ensure that the facility is effectively maintained following closure, the Agency is proposing that owners or operators of all new and existing MSWLF facilities prepare written closure and post-closure plans (§§258.30(c) and 258.31(c)). These written plans will provide a basis for the implementing State agency to evaluate the adequacy of closure and post-closure care, and will serve as the instrument for enforcing and establishing violations of the Subtitle D closure and post-closure criteria. In addition, these written plans will serve as the basis for developing site-specific cost estimates that in turn will determine the amount of financial assurance required (see Chapter 3).

2.4.1 Contents of Plans

The written closure plans under the proposed Subtitle D criteria must describe, at a minimum, the methods, procedures and processes necessary to close each MSWLF unit in accordance with both the closure performance standard in §258.30(a) and the final cover performance standard in §258.40. The closure plan must also include estimates of the maximum extent of operation that will ever be open, the maximum inventory of wastes that will ever be on-site over the active life of the MSWLF, and a schedule of closure activities. In order to be prepared to close the facility at any point during its active life, the description of closure activities must include the steps necessary to close the facility at its maximum extent of operation. The maximum extent of operation should include the maximum area of the MSWLF that contains wastes and has not been closed in accordance with today's criteria. The maximum extent of operation, however, does not include areas of the facility not subject to these criteria (e.g., areas closed prior to the effective date of these criteria). The closure plan should also describe, at a minimum, activities such as removing, treating, or disposing of waste inventory (based on the maximum inventory of wastes ever on site), decontaminating the facility, installing the final cover, monitoring ground-water, and managing leachate, run-on and run-off, and explosive gases.

The written post-closure plan under today's criteria must include a description of the post-closure care monitoring and maintenance activities specified under Section 258.31(a) and (b), and the frequency at which these activities will be performed. The post-closure plan must also specify the name, address, and telephone number of the person or office to

contact about the facility during the post-closure period. In addition, the post-closure plan must include a description of the planned uses of the property during the post-closure care period in accordance with the restrictions on post-closure use specified in Section 258.31(c)(3).

The Agency believes that the regulations specify the minimum information that must be included in the closure and post-closure plans to ensure that adequate preparations have been made for closure and post-closure care activities. The Agency encourages the States to develop detailed guidelines elaborating on the contents of these plans to ensure that owners or operators adequately address all necessary activities.

2.4.2 Approval and Modification of Plans

The proposed rule requires closure and post-closure plans to be prepared by the effective date of the rule or the initial receipt of waste at the MSWLF, whichever is later. The initial plans and any modifications must be approved by the State. However, the proposed rule leaves it to the States' discretion to specify the procedures and deadlines under which closure and post-closure plans must be submitted or otherwise made available to the implementing State agency as well as the criteria, procedures, and deadlines for modifying these plans. EPA believes that allowing the States to determine procedural issues offers the States the necessary flexibility to incorporate the revised Subtitle D criteria into their existing State programs. The proposed criteria do require that the closure plan be maintained at the facility or some other place designated by the owner or operator until final closure of the MSWLF. Likewise, the post-closure plan must be maintained during the post-closure period at the

facility or some other designated location. This requirement imposes minimal burden on owners or operators of MSWLFs and ensures that facilities keep records of their plans.

2.4.3 Options Considered and Rejected

The Agency considered waiving the closure and post-closure plan requirements for MSWLFs located in the lowest risk areas (e.g., locations where there is deep underlying ground water, highly impermeable soils, low net water infiltration, and low ground-water flow rates). The Agency rejected this location-based approach because it believes that planning for closure and post-closure care is essential at all MSWLFs. Even a facility in a low-risk area may cause threats to human health and the environment if improperly closed. Moreover, it will be difficult for the State to evaluate the adequacy of closure and post-closure care at a MSWLF without a closure and post-closure plan.

EPA also considered relying on the closure performance standard rather than a written closure and post-closure plan to ensure that the landfill is closed and maintained properly after closure. While this option would provide the maximum flexibility to the States to determine the need for plans on a case-by-case basis, and would reduce costs to owners or operators, the Agency rejected this option because it does not ensure that the MSWLF owner or operator has adequately prepared for closure and post-closure care. Moreover, this approach would greatly increase the administrative burden of evaluating the adequacy of closure activities and post-closure care.

2.4.4 Comparison with Subtitle C

The proposed requirements under today's Subtitle D criteria to prepare detailed written closure and post-closure plans are consistent with the Subtitle C requirements in 40 CFR 264.112, 264.118, 265.112 and 265.118 for hazardous waste facilities. The requirement to submit closure and post-closure plans to the State for approval and modification is also consistent with Subtitle C. However, unlike Subtitle C, which specifies in the regulations the conditions and establishes deadlines and procedures for submitting and modifying closure and post-closure plans, the proposed Subtitle D criteria leave these decisions to the States.

2.4.5 Consistency with State Programs

Based on the results of the Agency's survey of the solid waste regulations in nine States, the Agency expects that the proposed requirement to require closure and post-closure plans will not be inconsistent with most State programs. Of the nine States reviewed, only Maryland does not require a closure plan; however, closure procedures must be included in the engineering plans as a condition of receiving a permit. Each of these nine States also requires either an additional plan for post-closure care or requires that post-closure care be addressed in the closure plan. (Maryland recently proposed revised solid waste regulations that would specifically require post-closure care.)

Most of the States in the survey already have procedures for approving and modifying closure and post-closure plans. In a process similar to Subtitle C, seven of the eight States requiring closure and post-closure

plans require that these plans be approved as part of the permit process, and require that modifications be approved by the implementing Agency.

2.5 CLOSURE AND POST-CLOSURE CARE CERTIFICATION

Today's proposed criteria require owners or operators to submit, following the completion of closure and post-closure care at each landfill unit, a certification verifying that closure and post-closure care activities have been completed at that unit in accordance with the approved plans (§§258.30(e) and 258.31(f)). These certifications must be based on a review of the unit by a qualified party and must provide an objective evaluation of the performance of closure and post-closure care. The Agency is requiring objective certifications of closure and post-closure care in order to provide a mechanism for ensuring that these activities have been conducted properly and in accordance with State-approved plans. In addition, a certification requirement provides an effective trigger mechanism for releasing owners or operators from financial responsibility requirements for closure and post-closure care upon completion of closure and post-closure activities (see Chapter 3). Consistent with the overall strategy of providing flexibility to the States and minimizing the inconsistencies between existing State programs and the proposed criteria, the Agency is allowing the States to determine who is qualified to make such certifications. Qualified parties might include an independent registered professional engineer, an in-house registered professional engineer who can make an objective evaluation, or State inspection officials.

2.5.1 Comparison with Subtitle C

The Subtitle C requirements in 40 CFR 264.115 and 265.115 require owners or operators of hazardous waste facilities and independent registered professional engineers to certify that closure of each disposal unit (i.e., each landfill cell or trench, surface impoundment, waste pile, and land treatment area) and closure of the entire facility have been in accordance with the approved closure plan. These certifications must be submitted to the Regional Administrator for approval. The Subtitle C regulations specify an analogous certification requirement for the completion of the post-closure care period at each unit. The proposed requirements for MSWLFs under the proposed Subtitle D criteria are consistent in intent to Subtitle C, but allow States to specify acceptable certifications in order to provide flexibility in State programs.

2.5.2 Consistency with State Programs

The results of the Agency study of selected State regulations showed that all of the nine States chosen for case study, except for Washington, require either a certification by the facility owner or operator or inspections by the State agency or a registered professional engineer at the time of closure to ensure that activities have been conducted properly. California requires a certification by the facility owner or operator while the others (Florida, Louisiana, New York, Oregon, and Texas) require inspections by the implementing agency for closure approval. Florida also requires a registered professional engineer to monitor closure activities to ensure that the closure plan is being carried out as written. Washington and New York are revising their solid

waste regulations to require that closure be certified by an independent registered professional engineer. Although Wisconsin and Maryland do not include inspection or certification requirements in their regulations, both of these States inspect facilities on a routine basis. Wisconsin also requires most sites to submit documentation of closure activities, including photographs, as a condition of being released from the financial responsibility requirements.

Procedures for ensuring that post-closure care is carried out properly vary among the nine States reviewed. Texas and New York require inspections at the end of the post-closure care period by the State agency for approval. In Florida, inspections are made throughout the post-closure care period; in Louisiana and Wisconsin, reports verifying that post-closure care is being carried out according to the post-closure plan must be submitted to the implementing Agency during the post-closure care period.

2.5.3 Other Options Considered

The Agency considered allowing the States to develop procedures for approving completion of closure and post-closure care at MSWLFs rather than specifying certification requirements. This option would provide maximum flexibility to the States. However, EPA was concerned that a minimum requirement for verifying that closure and post-closure care activities have been adequately completed is necessary to ensure the protection of human health and the environment. For this reason, the proposed rule requires objective certifications consistent with Subtitle

C, but allows States to specify who may make the certification in order to preserve flexibility.

3. FINANCIAL ASSURANCE CRITERIA FOR CLOSURE, POST-CLOSURE CARE AND CORRECTIVE ACTION

The proposed criteria require owners or operators of MSWLFs to demonstrate financial assurance for the costs of conducting closure and post-closure care and, if applicable, corrective action for known releases. The purpose of financial assurance is to ensure that if an owner or operator of a MSWLF declares bankruptcy, abandons the facility, or otherwise fails to pay for closure, post-closure, or corrective action, adequate funds will be available to cover these costs. The amount of financial assurance required is based on site-specific cost estimates of hiring a third party to perform closure, post-closure care, and corrective action.

This chapter describes in detail the analysis and rationale behind the proposed financial assurance requirements. It is organized into three sections. The first section discusses the scope of required coverage and the applicability of the requirements. The second section discusses the cost estimating requirements for closure, post-closure care and corrective action, which establish the amounts for which financial assurance must be provided. The third section examines the Agency's approach to requiring financial assurance for the estimated costs of closure, post-closure care and corrective action. To maximize flexibility for States in developing financial assurance requirements, the Agency's approach is to specify performance standards for financial assurance mechanisms rather than specifying the mechanisms themselves. Chapter 4 provides a detailed analysis of mechanisms that State may wish to allow for demonstration of financial assurance.

3.1 SCOPE OF COVERAGE AND APPLICABILITY OF CRITERIA

This section discusses two key elements of the proposed financial assurance criteria: the scope of financial assurance coverage required, and the entities that are required to provide such coverage. These elements are addressed separately because the approaches proposed in the Subtitle D criteria differ from other EPA financial assurance programs. This section also examines the approaches to scope of coverage and applicability currently used in State financial responsibility programs for MSWLFs.

3.1.1 Scope of Coverage

As discussed in the previous chapter, the proposed criteria require owners or operators of MSWLFs to provide financial assurance for closure, post-closure care and corrective action for known releases. The provisions for estimating the costs of the activities are discussed in Section 3.2.

The Agency considered requiring owners and operators of MSWLFs to demonstrate that funds would be readily available to compensate injured third parties. For several reasons, however, the Agency has decided to defer proposing such liability requirements at this time. First, the Agency is concerned that it does not have sufficient data at this time to specify the amount of liability coverage that would be appropriate for an MSWLF. Unlike Subtitle I of RCRA, which mandates a minimum level of coverage for underground storage tanks, Subtitle D of the statute does not specify any minimum financial assurance requirements for MSWLFs. To date, little data exist concerning third-party awards resulting from releases at

MSWLFs. While more data are available to assess potential awards from Subtitle C facilities, the Agency is reluctant to extrapolate from these data or to adopt directly the levels of coverage required for Subtitle C facilities without further analysis comparing the risks and resultant third-party claims from MSWLFs and Subtitle C hazardous waste facilities.

Second, RCRA §4010(c) allows the Agency discretion to take into account the practical capability of MSWLFs when developing the new criteria. The proposed criteria apply an extensive set of new regulations to a new universe of waste facilities, many of which may not otherwise have been subject to regulation. In light of the costs associated with imposing today's proposed requirements on a new universe of facilities and the current constraints in the insurance market, the practical capability of owners and operators to provide financial assurance for liability coverage is highly uncertain.

For these reasons, the Agency has chosen to focus on financial assurance requirements for costs of activities that are certain to be incurred (i.e., closure, post-closure care, and corrective action for known releases) with the objective of minimizing potential third-party exposures. In deferring third-party liability requirements, the Agency hopes to provide more time to obtain data on potential coverage levels and for the liability insurance market to adjust to a new potential market. The Agency adopted a similar approach when promulgating liability coverage requirements for Subtitle C requirements when it phased in the requirements over a three-year period to allow the market to adjust to the demand for increased capacity.

Deferring third-party liability coverage requirements at this time, however, does not preclude the Agency from promulgating such a requirement for MSWLFs at a later date. Further, the Agency encourages States to consider requiring such coverage if they choose. This decision to defer the requirements of course in no way relieves an owner or operator of liability should injury to third parties be shown to have resulted from operations of the MSWLF.

The Agency also considered requiring financial assurance for corrective action for releases that have not yet been detected; however, this approach was rejected. The Agency based this decision in part on the absence of data available for predicting future corrective action costs. For example, to require a facility with a high probability of a release to demonstrate financial assurance for corrective action costs, the risks posed by a facility as well as the potential size, impact and costs to remedy such releases are needed. Such facility risk analyses could require considerable time to complete and thus could also delay the adoption and implementation of regulations by States. Moreover, the Agency's approach is consistent with EPA corrective action requirements in Subtitle C.

3.1.2 Applicability

The proposed criteria exempt Federal and State government entities, defined as those entities whose debts and liabilities are also those of the Federal or State government, from the financial responsibility requirements for MSWLFs. All MSWLFs that are either owned or operated by a Federal or State government entity are covered by this exemption.

Because Federal and State government entities are permanent and stable institutions that exist to safeguard health and welfare, the Agency recognizes that they have the requisite financial strength and incentives to cover the costs of closure, post-closure care, and corrective action for known contamination in a timely manner. Moreover, this approach is consistent with the approach used under Subtitle C. The Agency believes, therefore, that it is not necessary to impose financial requirements on Federal and State government entities.

The Agency is considering an explicit exemption from the financial assurance requirements for Indian Tribes. The rationale for such exemption is that under the treaties negotiated between the Indian Tribes and the Federal Government, the Federal Government has a continuing obligation to protect the health and welfare of the tribes. The Bureau of Indian Affairs acts as trustee for the Federal Government in these treaties and the courts have broadly construed this trustee obligation. This obligation implies Federal support/intervention in the case of Tribal inability to pay. In the proposal, the Agency requested public comment on this issue.

The Agency has decided not to exempt local governments from financial assurance requirements because, relative to Federal and State government entities, they generally (1) have more limited financial resources and less flexibility in their annual budgets, making reallocation of funds for a specific purpose in a given year difficult; (2) cannot necessarily avail themselves of the traditional sources of municipal financing (i.e., intergovernmental transfers, bond issues, and taxes) quickly enough to ensure funding in a timely manner; and (3) have been more prone to

bankruptcy and defaults than Federal and State government entities. The first two of these considerations are fully discussed in Section 4.7.4. The third consideration is discussed briefly below.

Comprehensive data on local government financial distress are difficult to obtain. However, a report prepared by the Advisory Commission on Intergovernmental Relations (Bankruptcies, Defaults, and Other Local Government Financial Emergencies, March 1985), indicates that (1) three general purpose local governments and 15 other local government units filed for bankruptcy under Chapter 9 of the Federal Bankruptcy Code between 1973 and 1983; and (2) 32 local government units defaulted on government-purpose debt between 1972 and 1983. While these data indicate that local government bankruptcy and default are relatively rare, the Agency is concerned that financial stress could delay the timeliness of meeting the potentially sizeable Subtitle D obligations. Timely funding of obligations is threatened even if bankrupt or defaulting governments are eventually able to pay their debts through restructuring of terms or infusion of funds from other sources. Therefore, today's proposal requires local governments owning or operating MSWLFs to provide financial assurance in order to ensure that the Subtitle D obligation will be met in a timely manner.

3.1.3 Consistency with State Requirements

Approximately twenty States currently have financial assurance requirements for Subtitle D facilities. One of the Agency's major considerations in designing the proposed rule was to avoid, as far as practicable, disruption to these existing programs.

The Agency conducted a study of nine State financial assurance programs.⁷ The study found considerable variations among State programs regarding the applicability of the requirements and the types of mechanisms allowed to provide financial assurance. For example, some of the States examined exempt all governmental entities, including municipalities, from the requirements; others directed their requirements only to operators rather than to owners. Given this variation in the applicability of requirements, it is not possible for the Federal provisions to be fully consistent with State practices. In deciding on the applicability of the financial assurance requirements, EPA was therefore guided principally by its conviction that the rule should be broadly applicable in order to provide adequate coverage of closure, post-closure care and corrective action responsibilities.

3.2 COST ESTIMATING CRITERIA FOR CLOSURE, POST-CLOSURE CARE AND CORRECTION ACTION

The proposed Subtitle D criteria specify requirements for estimating the costs of closure, post-closure care, and corrective action. These requirements, discussed below, establish the amounts for which owners or operators must demonstrate financial assurance.

3.2.1 Closure Cost Estimates

Financial assurance for closure must be based on a site-specific estimate of the cost of conducting closure activities that are necessary

⁷ See Case Studies of State Financial Responsibility Programs for Subtitle D Solid Waste Disposal Facilities, Draft, March 1987, ICF Incorporated.

to satisfy the closure performance standard. The proposed criteria require the closure cost estimate to equal the maximum cost of closing the facility at any time during the life of the facility (i.e., at the point of maximum extent of operation as estimated in the closure plan). This requirement ensures that adequate funds are available for closure even if closure takes place earlier than expected. If owners or operators close units successively as they are filled, rather than operating multiple units simultaneously, the maximum area of the facility ever open at one time will be minimized, thus reducing the size of the cost estimate.

The proposed criteria require the closure cost estimate to be updated annually for inflation and whenever changes to the closure plan or landfill conditions increase the cost estimate, until the entire MSWLF has been closed. The Agency is proposing to delegate to the States the procedures for updating these estimates. The Agency would suggest that the States rely on inflation factors that are readily available to owners or operators (e.g., the Implicit Price Deflator for GNP). Owners or operators may also request a reduction in the closure cost estimate if changes in plans result in a reduction in the maximum costs of closure. Such adjustments would be made on a case-by-case basis. These provisions are consistent with requirements under Subtitle C. Finally, the owner or operator must keep a record of the most up-to-date cost estimate for closure at the MSWLF until he is no longer required to demonstrate financial assurance.

3.2.2 Post-Closure Care Cost Estimates

Today's proposed criteria require owners or operators of MSWLFs to demonstrate financial assurance for both phases of post-closure care to ensure that adequate funds will always be available in the event that the owner or operator fails to conduct post-closure care. The amount of coverage must be based on the most expensive costs of post-closure care during each phase, as reflected in the post-closure care cost estimate. The cost estimate for each phase of post-closure care is calculated by multiplying the annual cost estimate for each phase by the number of years of post-closure care required in that phase. The annual costs of post-closure care are the costs of monitoring and maintaining the MSWLF after closure in accordance with the post-closure plan. Because not all post-closure activities are conducted on an annual basis (e.g., cap replacement and monitoring well replacement may only be required periodically), the cost estimate should be adjusted to include these periodic costs as well as routine annual costs. For instance, if a final cap deteriorates over a 10-year period, the owner or operator would have to replace the cap three times over the initial 30-year phase of the post-closure care period. A share of this expense would be incorporated into the annual cost estimate for the first phase of post-closure care by dividing the total cost of cap replacements (i.e., the cost of cap replacement x 3) by 30 years.

Like the closure cost estimate, the post-closure care cost estimate must be adjusted annually for inflation and if changes in the post-closure plan or landfill conditions increase the cost estimate. Inflation adjustments are required only during the active life of the MSWLF. This

is consistent with the requirements in Subtitle C. The owner or operator also must retain records of the post-closure cost estimate until released from financial assurance for post-closure care.

The amount of coverage provided under the financial assurance mechanism(s) must equal the sum of the cost estimates for each phase of the post-closure care period. Coverage must be continuously provided until certification of post-closure care and release from financial assurance requirements. If the State has any reason to believe that post-closure care has not been conducted in accordance with the post-closure plan, it must provide a written statement of reasons to the owner or operator.

3.2.3 Cost Estimates for Corrective Action for Known Releases

The proposed criteria require owners or operators to demonstrate financial assurance for corrective action for known releases. The amount of assurance required is based on the corrective action cost estimate, which must equal the sum of the annual costs of conducting the corrective action program over the duration of such a program. The State is authorized to set the period over which the corrective action program must be completed. As with closure and post-closure care, the Agency anticipates that all of the mechanisms discussed in Chapter 4 will be available for coverage of corrective action costs. Possible exceptions are insurance and payment bonds (see discussion in Sections 4.4 and 4.6).

The Agency is proposing that financial assurance for corrective action for known releases be demonstrated after the estimate has been prepared and approved as required by §258.32(d). Because the cost

estimate is based on the site-specific corrective action program, there may be a significant lag between the detection of a release and final approval of a corrective action program and cost estimate. For example, assessments of the extent of contamination and analyses of alternative remedies may take several years. Prior to the onset of corrective action, an owner or operator may take interim measures, such as replacement of drinking water, to protect against immediate damages. Such measures may delay the commencement of actual corrective action measures. Because there may be a substantial time lag between discovery of the need for corrective action and the final preparation of a cost estimate for corrective action, States may wish to require demonstration of some financial assurance during this interim period (e.g., financial assurance for the costs of interim measures, or a flat amount of coverage to cover minimum costs).

An owner or operator must adjust the corrective action cost estimate to reflect price increases due to inflation and whenever the annual costs for the remaining corrective action period exceed the cost estimate. As the number of years remaining in the corrective action period declines, owners or operators may request a reduction in the corrective action cost estimate and the corresponding amount of financial assurance to reflect the remaining costs to be incurred.

3.2.4 Consistency with State Programs

The Agency's study of nine States revealed that all nine currently require or intend to require coverage for the costs of closure, and

post-closure care based on facility-specific cost estimates. None of the States had corrective action programs.

3.3 PERFORMANCE STANDARD CRITERIA FOR FINANCIAL ASSURANCE MECHANISMS

Historically, regulation of Subtitle D facilities has been a State-run program. One of the considerations guiding the Agency's approach to the financial assurance rule was to create requirements that will foster State implementation of the Federal criteria for financial assurance. For this reason, the proposed criteria make no specification as to allowable financial assurance mechanisms, but instead establish a performance standard for financial mechanisms, thus allowing the States maximum flexibility for determining allowable mechanisms.

States also will be responsible for specifying procedural requirements necessary to ensure that the performance standard and other financial responsibility requirements are satisfied, such as procedures for obtaining, reviewing, cancelling, or substituting mechanisms, procedures in the event of bankruptcy, and provisions for financial assurance in the event of transfer of ownership. Although it is impossible to foresee all the contingencies that may arise and affect the ability of a given mechanism to meet the obligations for which it was intended, it should be possible to develop mechanisms that will perform under a number of common contingencies.

The remainder of this section describes the performance standard criteria for financial assurance mechanisms authorized by States' Chapter Four discusses mechanisms that States may want to use and the provisions that may be helpful in meeting the performance standard.

3.3.1 Description of Financial Assurance Performance Standard

The performance standard in Section 258.32(e) of the proposed criteria specifies five provisions that financial assurance mechanisms must meet to ensure that adequate funds are readily available to cover the costs of conducting closure, post-closure care, and corrective action for known releases if the owner or operator fails to do so. The five provisions, discussed below, are:

- (1) Sufficiency -- the mechanism must ensure that the proper amount of funds will be available;
- (2) Availability -- the mechanism must ensure that funds will be available whenever they are needed;
- (3) Continuity -- the mechanism must guarantee the availability of the required amount of coverage at all times without any gaps in coverage;
- (4) Flexibility -- the mechanisms allowed by the State must provide flexibility to owners or operators; and
- (5) Enforceability -- the mechanism must be legally valid and binding, and enforceable under State and Federal law.

Sufficiency of Funds

To ensure that enough funds are available when needed, mechanisms should generally guarantee the full amount of financial assurance required, based on the current cost estimate, at the time they are established. However, because it may be difficult to fully fund a trust fund at the time it is established, States that allow trust funds as financial assurance mechanisms may wish to allow a pay-in period. Many small owners or operators may not be able to obtain other mechanisms, and

to require immediate funding of a trust could be overly burdensome. Subtitle C allows owners or operators to build up the trust over the life of the facility or 20 years (10 years for permitted facilities), whichever is shorter. States may wish to adopt similar requirements for MSWLFs. To meet the performance standard, however, the trust would have to be fully funded by the end of the MSWLF's active life. States may alternatively opt to require a shorter build-up period or accelerated payments into the trust in the earlier years of operation.

Availability of Funds

A mechanism should have clearly specified conditions under which it will be drawn upon to ensure that procedural challenges do not unnecessarily restrict the States' prompt access to needed funds to perform closure, post-closure care or corrective action in a timely manner.

To satisfy these provisions, States may need to establish standby trust fund requirements for certain mechanisms (e.g., letters of credit, surety bonds). The State may not be the appropriate recipient of funds, since in some states money may be required to be transferred to the State Treasury, where it becomes subject to appropriation by State legislatures. Because a trust is a separate legal entity, the transfer of funds into a standby trust does not trigger the transfer requirements to a State Treasury (since the funds are not legally the possession of the State). However, the State could be given discretion to order the trustee to make payments as necessary. States could follow Subtitle C standby trust requirements under 40 CFR 264 and 265.

Continuity of Coverage

Over time, the original conditions that prevailed when the financial assurance mechanism was first established are likely to change, and these changes, unless anticipated and planned for, could result in gaps in coverage for the costs of closure, post-closure care, and corrective action. For this reason, the Agency requires in the proposed criteria that the financial mechanism remain reliable over time by guaranteeing the availability of required coverage until the owner or operator is released from financial responsibility, or until he obtains an alternate mechanism.

In particular, States should establish provisions to prevent gaps in coverage that address contingencies such as (1) cancellation or termination of the mechanism by the provider, and (2) bankruptcy or incapacity of the financial assurance provider or the MSWLF owner or operator.

(1) Cancellation or Termination of Mechanisms. If a provider of financial assurance cancels or fails to renew a mechanism, an owner or operator may not be able to secure alternative mechanisms immediately, thereby creating a potential gap in coverage. To avoid this gap, States may consider requirements governing the cancellation of mechanisms. However, States also should consider that strict cancellation provisions may limit the availability of mechanisms.

States may consider requiring providers of financial assurance to give owners or operators adequate notice of cancellation so that the owner or operator can secure alternative assurance before the current mechanism is cancelled. For example, Subtitle C and proposed Subtitle I regulations require notification of cancellation to be provided at least 120 days in

advance of cancellation. Subtitle C rules also require that all providers, except insurers (who may directly reimburse the insured), fund a standby trust fund if the owner or operator is unable to obtain alternative assurance. The proposed Subtitle I financial assurance rule also proposes that a provider fund a standby trust fund in the event that the owner or operator is unable to obtain alternative assurance, but only if a release from the UST is suspected or confirmed. (Subtitle I, unlike Subtitle C and the proposed criteria for Subtitle D, requires financial assurance for contingent costs only.) In addition, when the current instrument expires, whether or not it has been drawn upon, States may consider requiring the owner or operator to have an alternative mechanism in place. In summary, cancellation provisions similar to those on the Subtitle C and Subtitle I programs can ensure the certainty of funds for closure, post-closure care, or corrective action for known releases by requiring that either funds are drawn from the mechanism before it can be cancelled, or that the owner or operator must secure alternate coverage before the mechanism may be cancelled.

The disadvantage of imposing strict cancellation provisions is that there may be a greater likelihood that the mechanism will be drawn upon, which may discourage providers from offering the mechanism. When designing financial responsibility programs, States should attempt to strike a balance between more strict cancellation provisions that may reduce the availability of the mechanism and less strict cancellation provisions that may provide less certainty that funds will be available when needed.

(2) Bankruptcy or Incapacity. The bankruptcy or incapacity of a MSWLF owner or operator or provider of a financial assurance mechanism could also result in a lack of funds when needed if the State has not established certain procedural requirements. The Agency believes that it is important that the State be notified if any of these parties files for bankruptcy proceedings because it threatens (1) the continuity of operations at the landfill and the ability of the owner or operator to meet the financial obligations of closure, post-closure care, and/or corrective action or (2) the ability of the provider of financial assurance to satisfy its obligation. Likewise, the Agency believes that it is important that an adequate time period be specified to allow owners or operators time to obtain an alternative mechanism if the provider of the instrument is bankrupt.

States may wish to use the procedural requirements of Subtitle C or Subtitle I as guidelines. For example, those regulations require an owner or operator and providers of assurance, such as corporate guarantors or banks, to notify the Regional Administrator within 10 days after they enter a bankruptcy proceeding and allow the owner or operator 60 days to secure alternative assurance. States should consider ways to ensure that financial assurance contracts will be considered as an obligation of the bankrupt provider in a court proceeding.

Subtitle I proposes to extend the applicability of the bankruptcy notification provision to States that provide a State fund as evidence of financial assurance. If the State fund becomes incapable of providing financial assurance, the State is required to notify the Regional Administrator and owners and operators covered within 10 days of the fund

becoming incapable of providing required coverage. The incapacity of a State fund is a concrete, definable event that could occur if monies in the fund are depleted. In order for States to ensure that owners and operators of MSWLFs have adequate financial assurances for closure, post-closure care, and corrective action, the State should recognize the importance of notifying MSWLFs in the event that the State fund becomes incapable of providing financial assurance. By providing notice to the MSWLF of the incapacity of a State fund, the owner or operator has time to obtain alternative coverage and remain in compliance with the regulations.

Flexibility

States, in authorizing financial assurance mechanisms for demonstrating financial assurance, should provide a range of mechanisms to provide owners or operators of MSWLFs with flexibility for demonstrating compliance while at the same time ensuring that they meet the regulatory requirements. For example, the Agency would not consider a program that restricted owners or operators to using only a financial test or insurance to be flexible enough because such restrictions would likely impose a significant burden on much of the regulated community. Small owners or operators may not pass the financial test and may similarly be unable to obtain insurance for their MSWLF because of constraints in the insurance market. The objective of financial assurance requirements is to ensure that all owners or operators plan and set aside funds for the cost of closure, post-closure care, and corrective action, if applicable; thus States should establish a program sufficiently flexible to allow owners or operators to obtain financial assurance.

Legal Validity and Enforceability

Allowable mechanisms for financial assurance must be legally valid and enforceable in order to ensure that the required funds will be available in the event they are needed. The validity of financial mechanisms is largely a matter of State law. However, a mechanism will generally be valid if it is issued by an institution that has the legal authority to issue the mechanism, and that is legally acceptable and/or regulated by a Federal or State Agency. In addition, other factors may affect the validity and enforceability of a financial mechanism. For instance, a mechanism should provide a way to resolve disagreements over interpretation of its contents. Rules of disclaimer in the mechanism might also be used to prevent delay in the application of the mechanism. And to determine which claimants will prevail in procedures like bankruptcy, where more than one claimant asserts a claim to assets, rules of priority should be established. Some mechanisms, such as cash deposits or deposits of government securities may not be secure in bankrupt proceedings, especially if the deposit is viewed as a "pledge" to the government.⁸ Other contract clauses, such as those pertaining to changes in the agreement, may also affect the treatment of the mechanism in a bankruptcy proceeding.

To help ensure that financial assurance mechanisms are enforceable, States may wish to specify wording for the mechanisms. Specified wording would make mechanisms uniformly enforceable and would eliminate the need for States to review mechanisms on a case-by-case basis. Subtitle C

⁸ Douglas F. Brenman, "Regulating Financial Responsibility for Bankrupt Operators, National Environmental Enforcement Journal, November 1987.

regulations for hazardous waste facilities specify wording for trust funds, surety bonds, letters of credit, and insurance, and requirements for the financial test and corporate guarantees. States may wish to refer to these requirements for guidance, which are found at 40 CFR 264.151.

3.3.2 Consistency with State Requirements

The nine States studied differed with respect to the procedures and types of mechanisms allowed for demonstration of financial assurance. At one extreme, Massachusetts currently allows only a performance bond, while at the other extreme, Wisconsin allows performance or payment bonds, deposits of cash or other liquid securities, escrow accounts, irrevocable trust funds, letters of credit, insurance, financial tests, and any other mechanism found acceptable by the implementing agency. For the proposed criteria, EPA decided that the most flexible approach would be to allow the States to determine which mechanisms to allow, rather than attempting to prescribe either a broader or narrower range of mechanisms than are currently being used by the States, and to provide a set of performance standards for the mechanisms chosen.

4. FINANCIAL ASSURANCE MECHANISMS THAT MAY BE AVAILABLE TO MSWLF OWNERS OR OPERATORS

In developing their own financial responsibility programs, States will determine the types of financial assurance mechanisms that will be allowable under their programs. This chapter provides general information on seven financial assurance mechanisms that are currently allowed or proposed for demonstrating financial assurance in various federal EPA programs, including: closure and post-closure care, liability coverage, and corrective action for known releases for hazardous waste management facilities under RCRA Subtitle C (40 CFR Parts 264 and 265, Subpart H); the proposed corrective action and liability coverage requirements for underground storage tanks containing petroleum under RCRA Subtitle I (40 CFR Part 280, Subpart I); and the abandonment and plugging requirements for underground injection control (UIC) wells under the Safe Drinking Water Act (40 CFR Part 144). The seven mechanisms include trust funds, letters of credit, surety bonds, State assumptions of responsibility, insurance and risk retention group coverage, financial tests, and guarantees. Standby trust funds and combinations of mechanisms and combined coverage are also discussed. For each mechanism, this chapter describes (1) the features of the mechanism, (2) use of the mechanism in other EPA programs and in certain State programs, (3) key provisions of the mechanism that the Agency believes are necessary or desirable to ensure the adequacy of the coverage provided by the mechanism, and (4) the cost and availability of the mechanism to the regulated community.

4.1 TRUST FUND

Trust funds are an allowable mechanism under most existing and proposed EPA financial assurance programs. When fully-funded, trust funds provide a high level of assurance and are widely available; however, their high cost to the regulated community may limit their desirability.

4.1.1 Features of the Mechanism

A trust fund is an arrangement in which the grantor of the trust transfers legal title of property to a trustee, who manages the property for the beneficiary of the trust. The trustor may designate himself or another party as the beneficiary of the trust. The trustee must manage the property according to the terms of the trust agreement and in accordance with applicable state law. The grantor of the trust may not modify or amend the terms of the trust agreement unless he reserves that right at its creation. That is, the grantor may create an irrevocable trust or a revocable trust. In a majority of States, the beneficiaries of the trust may modify or terminate the trust only if all beneficiaries consent and the modification of the trust will not interfere with a material purpose of the trust.

4.1.2 Use of Trust Funds in Other EPA Programs

Under current EPA regulations, owners or operators of Subtitle C facilities may use trust funds to demonstrate financial assurance for closure and post-closure care. Under proposed regulations, owners or operators may also use trust funds to assure the costs of corrective action for continuing releases at Subtitle C facilities.

Under the existing and proposed Subtitle C rules, owners or operators are allowed to build up the closure or post-closure care trust fund over a specified number of years until the value of the trust is equal to the required level of coverage. The purpose of this approach is to minimize the costs to the owner or operator of a fully-funded upfront trust fund. The trust fund is built up by making annual payments into the trust over a period of time called a "pay-in" period. Under Subtitle C regulations for permitted facilities, annual payments must be made into the trust over the term of the initial RCRA permit (i.e., 10 years) or over the remaining operating life of a facility, whichever period is shorter (40 CFR 264.143(a)(3), 264.145(a)(3)). For facilities operating with interim status prior to receiving a permit, the pay-in period is 20 years or the remaining operating life of the facility, whichever is shorter.

A pay-in period would also be allowed for trust funds used to assure corrective action for continuing releases under EPA's proposed rules. Although financial assurance is not required until corrective action has been triggered and funds are needed, a pay-in period is allowed because corrective actions are typically of long duration. The pay-in period in the proposed corrective action trust fund is twenty years or one-half of the corrective action period, whichever is shorter. The required trust fund balance at the end of the pay-in period must equal the costs of corrective action expected to be incurred after the end of the pay-in period.

Under the trust agreements specified in the regulations for closure, post-closure care, and corrective action at Subtitle C facilities, the Regional Administrator has sole authority to instruct the trustee to

release funds from the trust for the purpose of reimbursing the owner or operator, or other party authorized to conduct closure, post-closure care, or corrective action, for the particular costs incurred. The Regional Administrator can withhold reimbursement in part or in full if he determines that the particular costs are not in accordance with the closure, post-closure care, or corrective action plans, or that the expected costs will be significantly greater than the remaining trust fund balance. The Regional Administrator also has authority to begin termination of the trust fund, once he have been assured that all closure, post-closure care, or corrective action activities have been satisfactorily completed. Any remaining trust fund balance would then revert back to the owner or operator or other authorized party. The UIC program gives similar authority to the Regional Administrator.

The existing and proposed Subtitle C rules specify the wording of the trust agreement, and require that the trustee must be regulated and examined by a Federal or State agency. The trust agreement must be irrevocable, i.e., it cannot be changed or terminated by the owner or operator without the written agreement of the trustee and the Regional Administrator. However, the trust agreement provides that the terms of the agreement may be amended if all parties execute a writing amending the agreement. The proposed Subtitle I rules similarly specify wording of the trust agreement.

4.1.3 Use of Trust Funds in State Programs Surveyed

In the Agency's survey of selected States, most States surveyed allowed the use of trust funds. Some States provided the required wording

for the trust agreement. Most States specified that the trust fund must be irrevocable.

4.1.4 Key Provisions of the Trust Fund to Ensure Adequacy of Coverage

If a trust is used as a financial assurance mechanism, the value of the trust property should be equal to the required amount of coverage as determined by the facility-specific cost estimate. The trust agreement could provide for a pay-in period during which the grantor makes payments of specified amounts into the trust until the trust is fully funded. The length of the pay-in period may be designed to ensure that the trust fund balance equals the required amount of coverage before or as funds are needed for the assured activity.

To ensure the adequacy of coverage, States may wish to consider requiring that a trust fund used to assure the costs of closure and post-closure care at MSWLFs be structured similarly to trust funds established for closure and post-closure care for Subtitle C facilities. In particular, States may consider basing the length of the pay-in period on the term of the facility's permit, if applicable, or the remaining operating life of the facility, whichever is shorter, consistent with the Subtitle C regulations.

A State may also consider requiring specific wording for the trust agreement in order to eliminate the need for case-by-case review. To assure that funds will be available when needed, the State may consider requiring that the trust fund be irrevocable, and provide that the agreement may be modified only if all parties consent to the modification. States should check applicable State law to ensure that this agreement is

enforceable under State law. The trustee should manage the funds of the trust under conservative investment policies (e.g., in 40 CFR 264.151(a)(1), the trustee must exercise "care, skill, prudence, and diligence..."). Furthermore, as in the existing and proposed EPA requirements, a State may consider requiring the trustee's trust operations to be regulated and examined by a Federal or State agency.

4.1.5 Cost and Availability of Trust Fund

Owners or operators using a trust fund will be required to pay an initial cost to establish the trust, which is normally a set, low fee. The annual costs of maintaining a trust fund for closure, post-closure care, and corrective action will include (1) the fee charged by the trustee for managing the fund, and (2) the annual payments to the trust itself, if a pay-in period is allowed. Based on surveys of various financial institutions, EPA believes the typical costs for administering a trust will range from 0.1 percent to one percent of the principal in the trust fund.⁹ The annual payments to the trust will vary depending on the length of the pay-in period, if applicable. The Agency recognizes that the trust fund option is likely to be the most costly mechanism because the assured funds are being set aside. However, the trust fund is the most widely available mechanism to those entities that can afford the payments.

⁹ See Memoranda, "Cost and Availability of Letters of Credit and Trust Funds for Providing Financial Assurance for Corrective Measures," ICF Incorporated, June 13, 1985, and "Estimates of the Costs of Obtaining Financial Assurance Mechanisms for Municipal Solid Waste Landfills Under the Proposed 40 CFR Part 258 Regulations," ICF Incorporated, July 2, 1987.

4.2 LETTERS OF CREDIT

States may consider allowing MSWLF owners or operators to use standby letters of credit to assure the required costs. This mechanism is widely used in other EPA and State financial assurance programs.

4.2.1 Features of the Mechanism

A letter of credit is an instrument issued by a bank or other financial institution (the issuer) in which the issuer agrees on behalf of its customer (the account party) to honor demands for payment to the beneficiary, usually upon presentation of the documents specified in the instrument. (In the context of financial assurance for MSWLFs, the account party would be the owner or operator, while the beneficiary of the letter of credit would be the State Agency.) Traditionally, letters of credit primarily have been used to finance foreign shipments of merchandise: the seller (the beneficiary) draws upon the letter of credit for the purchase price of the goods, and the issuer then collects the purchase price from the foreign buyer (the account party). Standby letters of credit differ from the traditional commercial letters of credit because a beneficiary may not draw upon the letter of credit unless a specified contingent event occurs. Only standby letters of credit are appropriate for purposes of assuring funds for the costs of closure, post-closure care, and corrective action.

In a typical standby letter of credit, the issuer agrees to honor drafts upon the letter of credit if the account party fails to make a payment or perform an obligation for the beneficiary of the letter of credit. The standby letter of credit specifies the documents necessary to

establish the fact of the account party's default, and the issuer must pay the beneficiary upon presentation of these documents.

Almost all letters of credit are required to conform to Article 5 of the Uniform Commercial Code (UCC) and the 1983 Revision of the Uniform Customs and Practice for Documentary Credits (UCP), published by the International Chamber of Commerce. In addition, the Comptroller of the Currency (Department of Treasury) has established safe banking practice guidelines for the issuance of letters of credit by national banks. (See 12 CFR 7.7016.) The Comptroller's guidelines suggest that: (1) the letter of credit must be entitled as such; (2) the letter of credit must contain a specified expiration date or be for a definite term; (3) the letter of credit should be limited in amount; (4) the bank's obligation to pay the beneficiary should arise only upon presentation of a draft or other documents specified in the letter of credit; (5) the bank must not be called upon to determine a question of fact or law at issue between the account party and the beneficiary; and (6) the account party should have an unqualified obligation to reimburse the bank for payments made under the letter of credit. These guidelines have been incorporated into Subtitle C requirements and States may consider incorporating them into their requirements if they chose to allow MSWLF owners or operators to use letters of credit.

4.2.2 Use of Letters of Credit in Other EPA Programs

Letters of credit are allowable mechanisms for financial assurance requirements for closure and post-closure care under the Subtitle C regulations (40 CFR 264.143(d), 264.145(d), 265.143(c), 265.145(c)).

Under Subtitle C rules, EPA specifies the required language for letters of credit. The letter of credit names EPA as the beneficiary, and the owner or operator as the account party. EPA may draw upon the letter of credit if the account party does not pay for closure or post-closure care. The Subtitle C letter of credit must be irrevocable, must be issued for an initial period of one year, and must provide for automatic extensions of at least one year. The owner or operator must establish a standby trust fund that will serve as a depository for any funds drawn against the letter of credit (see Section 4.8 for a discussion of the need for a standby trust fund). Letters of credit may also be used to demonstrate financial assurance for plugging and abandonment under the UIC program.

Letters of credit are also proposed as allowable mechanisms for the financial assurance requirements for corrective action under Subtitle C (51 FR 37854, October 24, 1986), and for liability coverage and corrective action for underground storage tanks containing petroleum under Subtitle I (52 FR 12786, April 17, 1987). The proposed letter of credit requirements are very similar to the requirements for letters of credit under the Subtitle C closure and post-closure care requirements.

4.2.3 Use of Letters of Credit in State Programs Surveyed

In a survey of selected States conducted by EPA, most States surveyed allowed the use of letters of credit to satisfy financial assurance requirements. Some States required particular language for the letter of credit, while others did not. Most regulations specified that the letter of credit should be irrevocable. One State required the issuing institution to be an institution regulated by the State Commissioner of

Banks and Trusts, or to be covered by the Federal Deposit Insurance Corporation or the Federal Savings and Loan Insurance Corporation.

4.2.4 Key Provisions of Letters of Credit to Ensure Adequacy of Coverage

States may choose to allow MSWLF owners or operators to use letters of credit to satisfy their financial assurance obligations under the revised criteria. The face value of the letter of credit should equal the amount of the cost estimate. States may also consider requiring that letters of credit (1) be executed only by banks or other institutions qualified to issue letters of credit under Federal or State law and (2) conform to the requirements of the WCP or applicable Commercial Code and to the Federal guidelines in 12 CFR 7.7016.

To ensure continuous coverage, the letter of credit should provide for automatic renewals after an initial period of coverage. States may also consider specifying the required language for the letter of credit to ensure that the instrument correctly describes the circumstances that will allow the State to draw upon the letter. Specifying the language of the letter of credit also eases the administrative burden on the State of verifying the validity of the instrument. Finally, States may need to require owners or operators to establish a standby trust to receive any monies that are collected under the letter of credit (see Section 4.8 for a discussion of the need to establish standby trust funds).

4.2.5 Cost and Availability of Letters of Credit

Based on a survey of several banks, a typical fee for the issuance of a letter of credit is about 1.5 percent of the face amount of the letter

of credit.¹⁰ Many financial institutions, however, require the account party to post collateral for the amount of the letter of credit.

Moreover, according to the Comptroller's guidelines for safe banking practices, the account party should have an unqualified obligation to reimburse the bank for payments made under the letter of credit.

The availability of letters of credit for financial assurance is uncertain. Banks generally will provide letters of credit only to entities that they believe will be able to pay for the obligation and that have adequate assets that could be seized if the firm's performance under the letter of credit is not satisfactory. Therefore, letters of credit may be available only to entities with the ability to meet large financial obligations and with strong customer relationships with the issuing institution.

4.3 SURETY BONDS

Surety bonds are typically included in other EPA and State financial responsibility programs, although the types of bonds -- performance, payment, or both -- allowed varied among the programs. The design of the bonds may vary as well. States considering allowing MSWLF owners or operators to use surety bonds may wish to study the use of the bonds in other programs. This section highlights some of the factors States may consider in designing a surety bond option.

¹⁰ See Memoranda, "Cost and Availability of Letters of Credit and Trust Funds for Providing Financial Assurance for Corrective Measures," ICF Incorporated, June 13, 1985, and "Estimates of the Costs of Obtaining Financial Assurance Mechanisms for Municipal Solid Waste Landfills Under the Proposed 40 CFR Part 258 Regulations," ICF Incorporated, July 2, 1987.

4.3.1 Features of the Mechanism

Surety bonds represent agreements between three parties: the principal (i.e., the owner or operator of the MSWLF); the obligee, the party to whom the principal promises to complete a specific act (i.e., the State agency); and the surety, the party that assures the obligee that the principal will fulfill his promise and, if the principal fails, that the surety will fulfill the principal's obligation to the obligee. Surety bonds that guarantee that the principal will perform a certain act defined in the bond are referred to as performance bonds. Under a performance bond, a surety has the option to (1) perform the act or complete the work necessary to satisfy the terms of the bond or (2) pay for the work to be done to satisfy the bond. Surety bonds that guarantee payment from one party to another under the conditions set forth in the bond, rather than performance of a specific act, are known as payment bonds.

The monetary liability of a surety company is defined in the bond as the "penal sum." Most payment bonds contain a provision that expressly discharges the surety's liability under the bond once the surety has paid a sum equal to the penal sum of the bond. Under a performance bond, the surety's obligation is limited to the penal sum if it chooses to pay under the bond; however, if the surety chooses to perform to satisfy its obligation under the bond, the surety is not released from its obligation until the performance is complete.

A surety is "jointly and severally" liable for the guaranteed payment or performance, which means that the surety assumes the principal's obligation as its own and can be sued jointly with the principal, as a codefendant, for such obligation. Consequently, most surety bonds include

an indemnification provision that requires the principal to reimburse the surety for costs incurred to satisfy the principal's obligation under the bond.

States may consider allowing owners or operators of MSWLFs to use either payment bonds or performance bonds to guarantee that funds will be available to conduct closure, post-closure care, or corrective action for known releases, and/or that the required activities will be carried out. The penal sum would be defined by the facility-specific cost estimate.

4.3.2 Use of Surety Bonds in Other EPA Programs

Under the Subtitle C regulations, owners and operators of permitted hazardous waste management facilities may use a performance bond to assure that closure and/or post-closure care will be conducted according to an EPA-approved closure or post-closure plan (40 CFR 264.143(c), 264.145(c)). Interim status facilities are not offered this option because their closure/post-closure plans, which specify what activities will be performed, have not yet been approved by the Agency. The Subtitle C regulations also allow owners and operators of permitted and certain status facilities to use surety bonds that guarantee payment into a standby trust fund to demonstrate financial responsibility for closure and post-closure care (40 CFR 264.143(b), 264.145(b), 265.143(b), and 265.145(b)). Payment is made into the standby trust if the owner or operator fails to perform final closure or post-closure care activities.

Recently, EPA has proposed to allow performance bonds to be used to assure the costs of corrective action at hazardous waste management facilities that have detected a release (51 FR 37854, October 24, 1986),

but rejected the use of surety bonds guaranteeing payment into a standby trust fund as a viable mechanism for corrective action. Because financial assurance for corrective action for known releases is triggered at the time that the costs must be incurred, an owner or operator using a payment bond would have to fund the corrective action standby trust fund immediately. If the owner or operator did not fund the trust fund, under the terms of the payment bond, the surety would be liable for fully funding the standby trust immediately. It is unlikely that a surety would be willing to issue a bond that would require immediate payment. Because it would be less expensive in every case for an owner or operator to use the corrective action trust fund option (which allows a buildup period) than the surety bond guaranteeing full payment into a standby trust fund option, the Agency did not propose to allow bonds guaranteeing payment of the standby trust fund.

Under the Safe Drinking Water Act (40 CFR 144.63), EPA allows owners or operators of Class I hazardous waste injection wells to use performance bonds to assure the costs of plugging and abandonment.

Most recently, the Agency proposed to allow owners and operators of underground storage tanks containing petroleum to use a performance bond to demonstrate financial assurance for the costs of corrective action and third-party liability claims resulting from a release during tank operation (52 FR 12786, April 17, 1987). The proposed performance bond guarantees that if the owner or operator fails to perform a corrective action or compensate third-parties injured by a release, the surety either will (1) perform the corrective action in accordance with the corrective action regulations or pay the third-party liability claims or (2) fund a

standby trust, as required by the Regional Administrator, up to the level of the penal sum.

4.3.3 Use of Surety Bonds in State Programs Surveyed

Of the nine States surveyed, eight explicitly allow the use of performance bonds to assure the costs of closure and/or post-closure care. Of these eight States, five explicitly allow the use of payment bonds to assure the costs of closure and post-closure care; three require the bonds to guarantee payment into a standby trust fund and two require the bonds to guarantee payment to the State treasury. Two of the States surveyed allowed owners or operators to use mechanisms not specifically listed in their regulations and surety bonds may be allowed under such authority.

Some of the State officials interviewed expressed concern that they have observed a trend whereby surety bonds are becoming unavailable, specifically to smaller entities. However, other State officials found that surety bonds are generally available.

4.3.4 Key Provisions of Surety Bonds to Ensure Adequacy of Coverage

Certain requirements imposed on surety companies issuing bonds and on the manner in which the bonds are written can increase the degree of assurance provided by surety bonds used to demonstrate financial assurance for the costs of closure, post-closure care, and corrective action for known releases at MSWLFs.

States should ensure that the amount of the surety bond equals the cost estimate. States may also consider requiring surety companies to meet certain qualification standards. For example, to be acceptable as a

surety on a surety bond that names a branch or agency of the Federal government as the beneficiary, sureties could be required to comply with the law and regulations of the Treasury Department (as specified in Sections 9304 and 9308 of Title 31 of the United States Code). The names of companies meeting these Treasury requirements are published on July 1 of each year by the Department of the Treasury in Circular 570: Surety Companies Acceptable on Federal Bonds. States may publish their own lists of companies that are registered to do business in the State and that are acceptable as sureties on bonds naming the State as beneficiary. States may also wish to establish specific wording for the bonds to minimize the burden on the State for case-by-case review, and should consider the requirement of a standby trust fund, if needed by State law (see Section 4.8 for a discussion of the need to establish standby trust funds).

4.3.5 Cost and Availability of Surety Bonds

The average annual cost or premium of a surety bond guaranteeing costs such as closure, post-closure care, and corrective action for known releases is expected to be about two percent of the penal sum of the bond.¹¹ The penal sum should equal the facility-specific cost estimate, unless the surety bond is used in combination with another mechanism. (See Section 4.9 for a discussion of combining mechanisms.) In addition to the cost of the premium, owners or operators using surety bonds may

¹¹ See Memoranda, "Costs and Availability of Surety Bonds for Providing Financial Responsibility Requirements for Corrective Measures," ICF Incorporated, May 17, 1985, and "Estimates of the Costs of Obtaining Financial Assurance Mechanisms for Municipal Solid Waste Landfills Under the Proposed 40 CFR Part 258 Regulations," ICF Incorporated, July 2, 1987.

incur costs related to posting collateral to satisfy the surety company's underwriting requirements. The amount of the value of the collateral could be as high as 100 percent of the face value of the bond. Generally, the value of the collateral required is based on the degree of risk the underwriters perceive the surety company is assuming.

Like letters of credit, the availability of surety bonds is uncertain. In general, they will only be available to financially strong firms, including those that can provide collateral for the full amount of the bond.

4.4 STATE ASSUMPTIONS OF RESPONSIBILITY

The Agency believes that State assumption of responsibility is an appropriate financial assurance option for the States and may be an important alternative to other mechanisms. In particular, the various specific types of State assumption discussed below (i.e., State funds, State-purchased mechanisms, State guarantees), used singly or in conjunction with other mechanisms, could reduce the costs of complying with requirements for closure, post-closure care, and corrective action. State assumption of responsibility could also be designed specifically for certain categories of MSWLFs, such as for municipally-owned or operated facilities.

State funds, guarantees and other assurances may be particularly appropriate forms of financial assurance for MSWLFs owned by local government entities, especially in States that currently do not require municipalities to demonstrate financial assurance for MSWLFs. By using some form of State assumption to provide evidence of financial assurance

for municipalities, assurance of closure, post-closure care, and corrective action costs could be accomplished without necessarily imposing a large compliance burden on municipalities that might otherwise be created by requiring them to make more formal financing arrangements, such as obtaining a letter of credit or surety bond, or funding a trust.

In addition, State assumption of responsibility for closure and post-closure care is consistent with current trends toward greater State involvement in local finances.¹² Greater State involvement has been characterized by increases in State aid to local governments, State-imposed limits on taxation, and State-required expenditures.

4.4.1 Features of the Mechanism

State assumption of responsibility involves the direct participation of the State in assuring that funds will be available to cover the cost of financial assurance for closure, post-closure care, and corrective action. The three basic avenues through which a State can directly assure the financial responsibility of a MSWLF are (1) the establishment of a State fund, (2) the purchase of an allowed financial mechanism for the MSWLF and (3) the issuance of a State guarantee. Under each of these alternatives, the State can either assume absolute or contingent responsibility for the closure, post-closure care, and corrective action financial assurance requirements. That is, the State may either assume the full costs of these financial assurance requirements (absolute assumption), or it may

¹² Background Document for the Financial Test and Municipal Revenue Test: Financial Assurance for Closure and Post-Closure Care, U.S. Environmental Protection Agency, Office of Solid Waste, November 30, 1981, p. 133.

assume responsibility only under certain specified conditions or only for that portion of cost which the owner or operator is unable to cover (contingent assumption). How the State raises the funds with which to support these assumed responsibilities, and to what extent the MSWLF owner or operator is expected to provide funds, are the factors that distinguish these three forms of State assumption of responsibility.

It should be noted that while "State assumption" is used here to include State funds, State purchase of a financial assurance mechanism, and State guarantees, not all of these alternatives necessarily require the State to bear the cost of closure, post-closure care, or corrective action. In some cases, such as a State guarantee or a State fund financed through general State revenues, with no direct municipal contribution, the State may bear all such costs. In other cases, the State's role may be to facilitate local assumption of responsibility (e.g., a State fund capitalized through tipping fees charged by participating MSWLFs).

State Funds

There are many possible approaches that could be used by States to design financial responsibility funds for closure, post-closure care, and corrective action. The first step in designing the fund is to determine how the fund should be used. A "primary" fund would assume absolute responsibility and would pay for the specified obligations of the owner or operator regardless of the financial position of the owner or operator or his willingness to pay; a "back-up" fund would assume contingent responsibility and would pay only if an owner or operator is unable or unwilling to pay. Backup funds are generally smaller than primary funds because they are usually used only to fill gaps in available resources.

States may also establish funds that cover only part of the regulatory costs.

The next step is to decide what revenue sources should be used to finance the fund. Potential sources of revenues include permit fees, fines or penalties, tipping fees, and tonnage fees. States may also exercise their taxing and spending authorities to finance a State fund by authorizing appropriations from the State treasury or debt issuance in the form of either general obligation or revenue bonds.

States could also establish a loan fund to provide financial assurance coverage for owners or operators of MSWLFs. A State could establish a fund through the financing procedures outlined above, make loans to entities to cover environmental obligations, and require repayments of any loans in a timely fashion. To assure that a borrower repays the loan on time, the State could require collateral or it could retain the right to capture other State funds allocated to a borrower (e.g. budgetary allocations to a municipal borrower) if he fails to repay.

State Purchase of Financial Assurance Mechanisms

States could purchase a financial assurance mechanism from another party to provide coverage for an entity or group of entities. A purchased financial assurance mechanism may be less expensive to the State than establishing a State fund, depending on the features of the fund, since such mechanisms are normally priced at a percentage of the amount of coverage provided. Moreover, if an environmental obligation arises, the issuer of the mechanism would be liable for the face value of the instrument.

State Guarantees

State guarantees are a form of assumption of responsibility whereby a State pledges to provide the funds when they are needed to cover the costs of closure, post-closure care, or corrective action if the owner or operator fails to do so. The State guarantee is a form of intergovernmental transfer of a specific obligation from one entity to another (i.e., similar to the guarantees, discussed in Section 4.7). A guarantee may be less expensive for the State than establishing a State fund or purchasing a financial assurance mechanism from another party.

It should be noted that a preliminary analysis indicates that State guarantees may not be an available option for demonstrating financial assurance in some States. No States currently provide State guarantees under their solid waste programs either due to State constitutional restrictions (e.g., prohibitions or limits on the pledge of State credit, with "credit" defined to include State guarantees) or a policy decision that State guarantees of municipal obligations are not appropriate.¹³

4.4.2 Use of State Assumptions of Responsibility in Other EPA Programs

State funds and other State assurances are allowed or proposed to be allowed as mechanisms to provide evidence of financial assurance under both the RCRA Subtitle C program for hazardous waste treatment, storage, and disposal facilities and the proposed Subtitle I program for underground storage tanks containing petroleum. The Subtitle C program

¹³ See Case Studies of State Financial Responsibility Programs for Subtitle D Solid Waste Disposal Facilities, Draft, March 1987, ICF Incorporated, pp. 35-36.

allows States to assume responsibility for the costs of closure, post-closure care. In addition, both Subtitle C and Subtitle I programs allow States to assume responsibility for the costs of corrective action and third-party compensation. Under the Subtitle C regulations, a State assumption of responsibility is defined as when a State either assumes legal responsibility for an owner's or operator's compliance with the closure, post-closure care, or liability requirements, or when the State assures that funds will be available from State sources to cover those requirements. Under Subtitle I, a State may satisfy the financial assurance requirements of an owner or operator by assuring that monies from a State fund will be available to cover costs of financial assurance or otherwise assuring that such costs will be paid. Both sets of regulations require the Regional Administrator to evaluate whether State funds or other State assurances used for purposes of State assumption of responsibility are equivalent to Federal financial mechanisms. The factors to be evaluated in determining equivalency are the certainty that funds will be available and the amount of funds. States providing State funds or other State assurances must establish procedural requirements for allowing State assumptions of responsibility.

4.4.3 Use of State Assumptions of Responsibility in State Programs Surveyed

The results of an Agency survey of selected States indicate that several State funds have already been established for solid waste disposal facilities, some specifically for closure, post-closure care and

corrective action, and others that could be adapted for those costs.¹⁴ For example, New York has passed a bill and Massachusetts has proposed a bill authorizing bonds to raise grant and loan funds for publicly-owned solid waste facilities. The New York law authorizes the State to make loans for up to 50 percent of the cost of closure, while the Massachusetts bill would authorize the State to provide loans of up to \$2 million for closing landfills and to award grants of up to 90 percent of the cost of cleaning up drinking water supplies contaminated by leachate from solid waste landfills. Similarly, Wisconsin has established a Waste Management Fund capitalized by owners or operators of solid waste disposal facilities who must pay tonnage fees for closure and post-closure care based on the amount of waste at the facility. The Fund is to be used as a back-up fund to pay for any care that is necessary beyond the 30 years of post-closure care currently required in Wisconsin, for providing closure or post-closure care for owners or operators who fail to comply with the closure or post-closure care requirements, and for compliance action necessary to prevent imminent or substantial danger to public health or the environment. Finally, Illinois has passed a law that authorizes the State to require solid waste facilities to charge tipping fees and to forward the proceeds of the fees collected to the State. Although these tipping fees will be used for waste recycling development projects, similar arrangements could be made to provide either primary or backup funds for closure, extended post-closure care and corrective action.

¹⁴ See Case Studies of State Financial Responsibility Programs for Subtitle D Solid Waste Disposal Facilities, Draft, March 1987, ICF Incorporated, pp. 35-36.

State funds for cleanup of contamination caused by underground storage tanks containing petroleum are in place in several states, including Florida and Maine. Some States allow these funds to cover several different types of environmental problems, including releases of both petroleum and hazardous wastes. Revenue sources for these funds include fees, taxes, fines, penalties and/or legislative appropriations.

4.4.4 Key Provisions of State Assumptions of Responsibility to Ensure Adequacy of Coverage

To ensure that State assumptions of responsibility are as effective as other financial assurance mechanisms, State implementing agencies should ascertain whether the amount and timeliness of funds will provide an adequate level of coverage.

If a State establishes a back-up fund or a contingent guarantee, the implementing Agency will need to specify the circumstances under which State responsibility is assumed. For example, State expenditures might be triggered (1) when an owner or operator is unable or unwilling to perform or pay for closure, post-closure care, or corrective action; (2) where no responsible owner or operator can be identified; or (3) in emergency situations where the owner or operator is unable to respond effectively.

State regulations might also specify additional key provisions related to State back-up funds or State contingent assurances such as (1) whether the State can recover costs from the responsible owner or operator, and (2) whether the State can pay for closure, post-closure care and corrective action in emergency situations even if the owner or operator has funds available to pay.

4.4.5 Cost and Availability of State Assumptions of Responsibility

The cost of State assumptions of responsibility for owners or operators of MSWLFs could vary depending on the form chosen. For example, if the State provides a guarantee, the only costs may be for submitting requests for inclusion in State programs and reporting the assurance obtained to the State authority. The costs to owners or operators could be higher if the State establishes a State fund that requires the owner or operator to reimburse the State for drawdowns of State funds used to perform closure, post-closure care, or corrective action, or if the fund is capitalized by the owners or operators themselves (e.g., fees based on tonnage handled). The costs to the State will depend on how funds are collected and how the fund is used (e.g., cover all costs or only costs if the owner or operator defaults).

Availability of state assumption mechanisms will depend on the willingness of the State to enter into such agreements, and on the degree to which the State is limited constitutionally, as in the case of guarantees.

4.5 INSURANCE AND RISK RETENTION GROUP COVERAGE

Both insurance and risk retention group coverage may provide viable financial assurance options for MSWLF owners and operators for the costs of closure and post-closure care; however, the Agency is uncertain of the viability of such coverage for corrective action costs. This section discusses the applicability of insurance and risk retention group coverage to all of the required types of coverage.

4.5.1 Features of the Mechanisms

Insurance is a contractual arrangement under which an insurer agrees to compensate an insured for losses. By purchasing insurance, the insured transfers financial risk to the insurer. An insurer assumes the stated liability of the insured and thus insurance could be an option to relieve the owner or operator of the burden of paying the required costs. If insurance is purchased to satisfy a regulatory requirement (i.e., to provide evidence of financial assurance for closure, post-closure care, or corrective action), the regulatory agency is not a party to the insurance contract. In this way, insurance differs from some of the other types of financial assurance mechanisms mentioned in this background document. Insurance also differs from these other mechanisms in that its cost is actuarially based (i.e., the insurer bases premium amounts on the expected value of the claims the insurer expects to pay).

Insurance used for assuming the costs of closure, post-closure care, and corrective action for known releases could be structured as an annuity. All three types of the required coverage are certain, non-contingent costs that are defined by a cost estimate. The timing of these costs can also be predicted with some certainty. (In the case of corrective action, the timing of the costs is immediate.) Based on the cost and payment schedule information, an insurer can determine the amount of capital that the insured must pay to the insurer in order for the insurer to have sufficient capital and return on the capital to make the required payments. In this way, an insurance policy assuring the required coverage is similar to a trust fund. The size of the insurance premiums may be similar to the amount of annual or periodic payments into a

gradually-funded trust fund. The Agency believes that insurance premiums are tax deductible, while trust fund deposits may not be. If this is true, although the gross costs of insurance and trust funds may be similar, the net cost of insurance may be less as a result of the tax benefit.

Insurance to cover closure and post-closure care costs may be provided in one of two ways: in the form of a stand-alone insurance policy or as part of a larger property and casualty policy including coverages for other risks (e.g., types of property damage, theft, etc.). The face value of the policy would be required to equal the facility-specific cost estimates for closure and post-closure care, as applicable. Although insurance is hypothetically available for closure and post-closure care costs, in practice insurance may not be available since insurance is best suited to provide financial assurance for unknown obligations.

Insurance to cover corrective action for known releases is unlikely to be available. In fact, in the proposed rule to require financial assurance for corrective action for existing releases at hazardous waste management facilities, the Agency decided not to allow insurance as an option (51 FR 37854, October 24, 1986). Because such coverage would be analogous to writing fire insurance for a burning building, the premiums would have to be greater than the actual cost of corrective action in order for the insurance company to profit. Therefore, the Agency determined that it would be more economical for an owner or operator to adopt another mechanism. Moreover, the Agency is unaware of any insurers willing to provide coverage for corrective action for known releases.

Although chances are remote that an owner or operator could obtain such coverage, States may, however, choose to leave this option open in case insurance for corrective action becomes available in the future.

In general, risk retention groups function in the same manner as insurance companies: the individual risks of group members are transferred to a risk pool administered by the group or association.¹⁵ In return, members of the association pay a premium based on the expected value of their individual losses. The cost of losses is borne by the risk retention group. The primary difference between an insurance company and a risk retention group is that insurance companies sell their services to the public at large, while risk retention groups can sell insurance only to its members. Thus, risk retention group coverage is a special type of insurance coverage. A number of risk retention groups have formed since the enactment of the Risk Retention Act, but none of these groups cover pollution liabilities. A few firms have been trying to form risk retention groups that would offer pollution liability coverage but none of these groups are operational, and it does not appear that any will be operational in the near future. The Agency is unaware of any efforts to form a risk retention group that would cover closure, post-closure care, or corrective action costs.

¹⁵ On October 27, 1986, President Reagan signed the Risk Retention Act of 1986 (Public Law 99-563). This legislation preempts many State regulatory provisions that would otherwise impede the establishment of group risk pooling arrangements to cover individual liability risks. Under the statute membership in a risk retention group is limited to persons who are "engaged in businesses or activities similar or related with respect to the liability to which such members are exposed by virtue of any related, similar, or common business, trade, product, services, premises, or operations" (Section 2(a)(4)(F)).

4.5.2 Use of Insurance and Risk Retention Group Coverage in Other EPA Programs

The Subtitle C regulations (40 CFR 264.143(e), 264.145(e), 265.143(d), and 265.145(d)) include insurance as one of the mechanisms that owners and operators of hazardous waste facilities may use to establish financial assurance for closure and post-closure care. Risk retention groups are interpreted as a form of insurance and thus are allowed under the Subtitle C rules. Insurance was also one of the mechanisms authorized by the Agency to provide evidence of financial assurance for bodily injury and property damage to third parties caused by sudden and nonsudden accidental occurrences arising from the operations of hazardous waste management facilities under Subtitle C regulations (40 CFR 264.147 and 265.147). Currently, very few insurers provide coverage for closure and post-closure care. Insurers are wary of providing such coverage because of the long term nature of the (potential) exposure and the difficulty of assessing the risks.

In addition, the proposed Subtitle I financial assurance rule allows UST owners and operators to demonstrate financial assurance for corrective action and third party liability through use of insurance and risk retention group coverage, among other mechanisms (52 FR 12786, April 17, 1987).

4.5.3 Use of Insurance and Risk Retention Group Coverage in State Programs Surveyed

The Agency's survey of States with existing financial assurance requirements for solid waste facilities revealed that some States do not allow insurance for closure and post-closure care, some allow it only for

closure, and some allow it for both. Some State officials stated that insurance for closure and post-closure care is almost completely unavailable or available only at a very high cost. The availability of risk retention groups is uncertain and will depend on States' responses to the Risk Retention Act of 1986. The Act currently allows risk retention groups to operate in States in which they are not licensed. States have traditionally regulated the insurance industry within their States and are concerned about the impact this Act may have on their authority to regulate.

4.5.4 Key Provisions of Insurance and Risk Retention Group Coverage to Ensure Adequacy of Coverage

If States choose to allow owners and operators to use insurance to guarantee that closure, post-closure care, and corrective action funds will be available, there are a number of basic provisions that States should consider requiring of insurers. For example, States may wish to require that insurers be licensed to transact the business of insurance or be eligible to provide insurance as an "excess or surplus lines" insurer in one or more States. These qualifications are currently required under the Subtitle C liability coverage requirements for owners and operators of hazardous waste treatment, storage, and disposal facilities to ensure that insurers are subject to regulatory oversight by State insurance commissions. At the same time, these requirements should not prevent participation in the insurance market for closure and post-closure care, since most insurers can easily meet the minimum qualifications.

States may also wish to consider requiring risk retention groups issuing coverage to be chartered and licensed in at least one State and

authorized to operate in each State where a covered municipal waste landfill is located. These minimal qualifications are designed to conform to the requirements for risk retention groups included in the Risk Retention Act of 1986. Some of the controls over risk retention groups specified in the Risk Retention Act include requirements that each group submit:

- An operating plan, including a rating schedule, available coverages, and limits, to the commissioner in each State where the group intends to do business before it begins operation; and
- A copy of the group's annual financial statement to regulators in every State in which it operates. The statement would have to be certified by an independent accountant and include an opinion on the group's reserves by a qualified actuary.

In addition, Federal courts have the authority to issue an injunction to stop a risk retention group from operating in all States if the court finds that the group's financial condition is precarious.

4.5.5 Cost of Insurance and Risk Retention Group Coverage

As discussed in Section 4.5.1, insurance premiums for policies assuring the costs of closure, post-closure care, or corrective action may be similar to periodic payments into a trust fund with a build-up period. In practice, however, given insurers reluctance to offer any type of pollution coverage -- either for third party liability or for closure and post-closure care -- this type of coverage is expected to be costly and very difficult to obtain.

The Agency is unaware of any risk retention groups that provide coverage for closure, post-closure care, or corrective action costs. If

such coverage were available from a risk retention group, the Agency expects that the risk retention group coverage cost would be similar to that of insurance.

4.6 FINANCIAL TEST

The purpose of a financial test is to measure the ability of an entity to fund, out of its own resources, the costs of closure, post-closure care, and corrective action. As discussed below, States may consider allowing private firms to use a financial test similar to those used in other EPA programs and allowing local governments to self-insure by designing an appropriate "financial test" or other measure of local governments' ability to fund the required costs in a timely manner.

4.6.1 Features of the Mechanism

A financial test is a demonstration that an entity's own resources are adequate to meet its obligations. If an entity can successfully meet the requirements of a financial test for the amount of required coverage, the entity is not required to procure another financial assurance mechanism to demonstrate that it will be able to fulfill its environmental obligations. Because a financial test does not in itself ensure available funds, a financial test for MSWLFs should be designed carefully to ensure that entities passing the test will, in fact, be able to meet their closure, post-closure care, and corrective action obligations. The criteria must be stringent enough to indicate financial distress that could result in either a private firm's bankruptcy or a local government's inability to fund the required activities in a timely manner. If an

entity passes the financial test, the arrangements for paying the obligations are left to the entity to decide.

4.6.2 Use of Financial Tests in Other EPA Programs

EPA has included a financial test as a method of demonstrating financial assurance in several regulations proposed and promulgated since 1982, including: (1) the financial responsibility regulations for closure, post-closure care, and liability coverage for hazardous waste treatment, storage, and disposal facilities under Subtitle C of RCRA; (2) the proposed financial assurance requirements for corrective action for known releases at Subtitle C facilities; (3) the financial assurance requirements for plugging and abandoning wells under the UIC program; and (4) proposed financial assurance requirements for corrective action and liability coverage for releases from underground storage tanks containing petroleum (RCRA Subtitle I).

The Subtitle C financial test requires that the firm (1) satisfy two of three ratios designed to indicate relative financial strength, (2) have working capital and tangible net worth of at least six times the sum of the closure and post-closure care cost estimates, (3) have at least \$10 million in tangible net worth, and (4) have 95 percent of its assets in the U.S. In addition, the firm must submit a letter from its chief financial officer, the accounting opinion of an independent certified public accountant, and a special report from the firm's certified public accountant attesting to the accuracy of the data presented in the chief financial officer's letter. As an alternative to the net working capital

and ratio requirements, a firm may substitute an investment grade bond rating (one of the top four ratings) from Standard and Poor's or Moody's.

Under the proposed RCRA Subtitle I requirements, a firm must have tangible net worth of ten times the required aggregate coverage and a minimum tangible net worth of \$10 million. The firm must also file financial statements annually with the Securities and Exchange Commission or receive a 4A or 5A financial strength rating from Dun and Bradstreet. The firm must also submit a letter from the chief financial officer certifying that the company has met the requirements of the test.

In each of these cases, the financial test is designed for and primarily used by private sector firms. These tests may not be directly applicable to governments that own MSWLFs. For example, each existing test has a minimum requirement for net worth, an accounting term that is difficult to determine from the financial statements of government entities. Section 4.6.4 provides a more complete discussion of the problems of applying standard private sector indicators of financial health to local governments.

A financial test for municipalities was considered during the development of the Subtitle C financial assurance requirements. However, the April 7, 1982, interim final rule specifying the Subtitle C financial test did not include a financial test for municipalities. The reasons for this decision, as described in the preamble (47 FR 15042, April 7, 1982) and background document¹⁶ were as follows:

¹⁶ Background Document for the Financial Test and Municipal Revenue Test: Financial Assurance for Closure and Post-Closure Care, U.S. Environmental Protection Agency, Office of Solid Waste, November 30, 1981, p. 134.

- A financial test based on tax revenues was considered inappropriate based on evidence that municipalities would rarely be able to quickly shift allocated funds to meet the Subtitle C requirements.
- A financial test that used detailed financial information (e.g., financial ratios) was considered inappropriate due to potential difficulties in interpreting and verifying municipal accounting information.
- Bond ratings were also rejected as an element of a financial test for municipalities. Agency analysis indicated that municipal bond ratings may only serve to confirm, rather than predict, financial distress.

Thus, the Agency has not, to date, included a special financial test for local governments in any of its financial assurance rulemakings. Local governments are not expressly prohibited from using the existing private sector tests; however, because of differences in accounting methods, these tests in practice may not be available to or appropriate for local governments.¹⁷

4.6.3 Use of Financial Tests in State Programs Surveyed

Eight of the nine States surveyed by the Agency with financial assurance requirements for MSWLFs allow some type of financial test. These tests are in general designed for private firms (many States use the

¹⁷ The November 1981 background document for Subtitle C uses the term "municipality" to describe local government entities that would use a financial test. Because of possible limitations of the term "municipalities," this background document uses the broader term "local governments" to describe such entities. The question of how to define local governments for purposes of financial assurance is discussed in Section 4.7.5.

federal Subtitle C financial requirements) and are often made available only to private firms.

Some states have developed other low-cost financial assurance options as alternatives to a financial test for local governments. Texas, for example, allows a municipality to demonstrate financial assurance through a resolution from a Commissioner's Court or a City Council stating that a county or a city takes all responsibility for providing adequate funds for the proper closure and post-closure care of a facility. Tennessee has recently proposed a rule allowing a municipality to provide financial assurance through a "contract of obligation." The contract permits the State to collect funds for closure and post-closure care from any funds being disbursed from the State to the municipal entity.

4.6.4 Approach to Developing a Financial Test for Local Governments

Options for a financial test for local governments are being reviewed for MSWLFs because, given the high incidence of local government ownership of MSWLFs, a financial test specifically designed for such entities could significantly reduce the costs of financial assurance. Moreover, financial test options currently allowed by States are in general not available to local government entities. This section discusses an approach considered viable by the Agency for developing a financial test for local governments. The following section discusses an alternative financial test approach, using bond ratings, which was considered and rejected.

The Agency's suggested approach offers States a relatively simple means of offering financially secure local governments an alternative to

the purchase of one or more financial assurance mechanisms. In keeping with the rest of the proposed Subtitle D rule, this approach is presented in the form of a framework that States may wish to adapt to the circumstances of their local governments. The framework is comprised of three major parts; the rationale for each of these parts is discussed below.

Definition of a local government. Because the terms "local government" and "municipality" do not have standard meanings, a definition is necessary to specify the entities that are allowed to use the test. The definition will therefore affect the availability of the test to local government entities, i.e., if the definition specifies only certain types of entities, other entities will be excluded from using the test.

Fiscal measures. Financial tests under EPA and other agency regulations are often based on ratios or multiples involving standard financial measures such as net worth, total liabilities, and cash flow. However, designing a similar financial test for local governments is very difficult because financial test information derived from empirical data on firms does not adequately reflect the economic choices, resources, and constraints of non-profit entities. Whereas the ratios and multiples of existing financial tests are designed to provide information on the risk decisions that firms make in seeking returns, municipalities do not invest in assets for the purpose of gaining profits. In providing services to their communities, local governments rely on sources other than the assets or resources itemized on the balance sheet, namely the right to levy taxes. Therefore, the standard financial measures using financial

statement items are unlikely to portray the underlying strength of a government entity.

Moreover, the accounting methods used by governments make standard financial measures difficult to obtain and interpret. For example, net worth is a difficult measure to obtain from the financial statements reported by local governments. The net worth of a private firm represents the shareholders' investment (equity) in the firm and the reserves over which management has discretionary control; it is easily obtainable from the equity section of a private firm's balance sheet. In contrast, the equity section of a local government's balance sheet often consists of special fund balances that are already committed to future uses (e.g., funds reserved for government employee retirement systems). Because a local government's equity may not be completely available for discretionary purposes, it cannot be considered an equivalent measure to net worth of a private firm. "Unreserved" or "undesignated" funds could be considered as a net worth equivalent for local governments. An accurate measure of unreserved discretionary funds available may nevertheless require a detailed analysis of the legal restrictions on the uses of such funds.

Finally, financial tests in EPA programs are generally based on the ability of the test to predict bankruptcy of the entity. However, few local governments go bankrupt, and if they do, the bankruptcy is treated differently than for private firms. Therefore, it would be very difficult to choose a test based on its ability to predict municipal bankruptcy.

Because standard financial measures are inapplicable to local governments and do not measure the tax-based wherewithal of such entities,

the suggested framework introduces a new set of possible measures. These "fiscal measures" generally assess the financial capability of local governments in terms of the tax and revenue base that provides the entity with its ability to pay for environmental obligations. The measures therefore focus on the ability of the entity to provide funds for obligations in a timely fashion rather than on bankruptcy prediction. When combined with measures of the institutional constraints unique to government entities, fiscal measures may be used to construct a viable financial test for local governments.

Institutional requirements. A key precept behind the framework is that the ability of a local government to provide funds for Subtitle D purposes is not solely dependent on its financial strength. A State, in evaluating the financial capability of a local government, must look beyond strictly fiscal indexes of wealth or theoretical revenue-raising ability to examine whether legal constraints affect the realization of theoretical potential. For example, local government ability to tax, spend, and incur debt is often limited by State constitutions, statutes, or municipal charters. Such limits can be expressed in absolute dollar terms, as a per capita cap, on the basis of the tax rate required to service the debt (the "millage"), or as a percentage of some base (e.g., municipal expenditures). Moreover, local governments may not be able to reprogram or re-allocate already budgeted funds for Subtitle D obligations in a timely fashion. In addition, political decisionmakers may face conflicting priorities in allocating available funds.

Because of these constraints on local governments, the financial test framework suggests combining fiscal measures with "institutional

requirements" to ensure that local governments will not be encumbered by such constraints in meeting Subtitle D obligations in a timely manner. The specific types of possible institutional requirements are detailed later in this section.

Although none of the definitional, fiscal or institutional aspects of the framework discussed here are adequate in themselves to assure local government financial responsibility, taken together they constitute a set of factors which, adapted and combined in different ways by States, can provide a workable financial test for local governments. The specific measures or indices encompassed within each of these categories can be combined in ways that provide a relatively straightforward financial test which, at low cost to local governments, provides adequate assurance to States that municipalities that pass will meet their MSWLF obligations.

Establishing a "multi-criteria" test using both fiscal and institutional requirements is not unique to Agency financial tests. For example, the Subtitle C financial test for private firms uses a series of financial requirements, including three financial ratios, requirements for the levels of net worth, net working capital, and U.S. assets, and a bond rating. These financial requirements are combined with institutional requirements to assure that the financial information is accurate, including an unqualified opinion from an independent auditor and a special report from the auditor verifying the information reported to the Agency.

Moreover, the institutional component of the financial test may be necessary to add strength to the fiscal component. As discussed above, the fiscal measures are focused on broad measures of the economic base, and thus may not be as stringent as private sector measures in separating

strong and weak entities. An institutional requirement adds further assurance that the local government will be able to pay for an obligation if necessary.

Some of the specific components that a State might include for each part of a local government financial test are discussed briefly below. The purpose of this discussion is not to provide a comprehensive treatment of each component (the details of which may vary according to the provisions of State law), but rather to provide a framework that a State may use as a point-of-departure in formulating its own financial test.

a. Definition of a Local Government

The first consideration a State must address in formulating a financial test for local governments is how to define "local government" or "municipality." The terms are not exclusive and may include everything from single-purpose special districts to the general purpose governments associated with incorporated cities and towns. The definition of municipality, however, does not include counties. Although they are local in nature, counties in most States are more like administrative arms of the State than are independently chartered "municipalities." Counties are important to consider in this rulemaking because solid waste disposal services are often organized on a county basis.

Because local governments are creations of State law, the forms of local government will vary from State to State. Typical forms include counties, cities, towns, villages, townships, special districts, and public authorities. Special districts and public authorities are distinct from the other forms with respect to the breadth of their purposes and powers. Both are established to perform one or a limited number of

functions and are generally fiscally and administratively independent. Special districts often overlap municipal or county boundaries. Public authorities may lack geographic boundaries and are typically formed to construct and operate revenue-generating public facilities.

Despite the variety in forms of local government, one useful way to classify the various forms in any particular State for purposes of devising a financial test for MSWLFs is in terms of the breadth of powers exercised. The broader these powers, the more financially stable the local government is likely to be. Cities, towns, counties, and other "general purpose" local government units typically have broad powers to raise taxes and expend funds as well as general corporate and police powers. These broad powers, and the corresponding broad revenue base, distinguish general purpose local governments from special purpose units such as public authorities and special districts.

For the Subtitle D financial test, the definition of "local government" will have a significant impact on the availability of the test to local government entities. For example, if a State chooses to limit the availability of the test to general purpose governments, special purpose units such as public authorities will have to provide other forms of financial assurance. Therefore, certain definitions will make the test more stringent. Alternatively, States may wish to formulate two financial tests for local governments -- one applicable to general purpose units and another, stricter test applicable to special purpose units which are, for reasons mentioned above, inherently less fiscally stable.

b. Fiscal Measures

The fiscal component of the local government financial test attempts to measure in discrete terms the financial capability of the entity to provide funds for environmental obligations in a timely manner. The choice of alternative fiscal measures depends in large part on the objectives of the particular program for which the test is used and the desired stringency of the test.

The following are among the suggested alternative components of the fiscal part of financial test:

- Financial size
- Net fiscal capacity
- Size of contingency funds
- Simple fiscal ratios
- Relative per capita wealth or income vs. tax burden
- Bankruptcy/default history

Financial Size. The financial size measure assesses the economic base of a local government either in terms of annual tax revenues, population, or assessed value of property. This measure is similar to the \$10 million in net worth requirement in the Subtitle C (private sector) financial test in that it is intended to ensure a certain level of financial strength. For example, a local government with only \$5 million in revenues would not likely be able to afford a \$10 million obligation. Moreover, the measure is easily obtainable from government financial reports. However, an analysis would be needed of the effect of various levels of revenue requirements on test availability (i.e., the percentage of local governments able to pass a certain requirement) and the ability

of the test to screen out financially weak entities. This would require an analysis of Census Bureau tapes or similar data sources.

Net Fiscal Capacity. Net fiscal capacity results when actual expenditure, tax, or debt levels are below their legislatively mandated maximum. Comparing available capacity to the size of a potential obligation would indicate the degree to which a local government could expand its revenue-raising activity to meet new needs. Although this measure entails more administrative effort than the financial size measure, it also provides a higher degree of assurance that funds will be available. Moreover, the information required should be readily available to a local government and could be demonstrated on a streamlined form similar to (but shorter than) the Subtitle C financial test form. Further analysis is required of the feasibility of this approach. However, this alternative could be preferable to a simple financial size requirement because of the additional assurance it provides.

Size of Contingency Funds. Many local governments budget amounts each year to cover the costs of foreseeable but unplanned events such as snowstorms, tornadoes, fires, and other disasters. The costs of environmental activities could be included in the category of unplanned costs that a contingency fund may be used to cover; therefore, the size of a contingency fund may be a useful measure of financial capacity when compared to the potential size of the obligation. This alternative is more stringent than the first two options. By requiring the contingency fund to cover the obligation, it essentially functions as a fully funded trust fund in any given year. However, a reduced level of contingency funding could be used in combination with other fiscal criteria or with

other financial assurance mechanisms. Further analysis is necessary to determine the prevalence and average size of contingency funds. If the average size of funds is far less than the size of environmental obligations, then a requirement to provide contingency funding for such obligations may be infeasible.

Simple Fiscal Ratios. An example of a simple ratio that measures fiscal capability is the ratio of revenue to budgeted expenses. This ratio indicates how well the annual budget is being managed, that is, whether the government is running a deficit. While administratively simple, this type of ratio may be misleading. For example, local governments may run a surplus in one year to offset a previous year's deficits. However, because ratios from several years may identify important trends, an option could be to require information on this ratio for the last five years. This requirement would reveal trends in budgetary management as well as demonstrate that the entity can weather changes in its economic base over time, though it may be more administratively complex than other options.

Relative Per Capita Wealth or Income vs. Tax Burden. Relative per capita wealth or income provides an approximate measure of the "ability to pay" within a jurisdiction, since property values and income are the sources from which local taxes are paid. By comparing this measure to per capita tax burden, the degree to which wealth and income are already being tapped could be measured. However, the net fiscal capacity measure described above also compares actual and potential revenue, and also takes into account limits on taxing authority. Therefore, the relative per capita measure is both duplicative and less accurate.

Bankruptcy/Default History. Another possible measure is a requirement that a local government may not have declared bankruptcy or defaulted on a debt issue in the last five years. This requirement would help ensure that the local government is being operated in a fiscally prudent manner. Moreover, this requirement could easily be combined with another fiscal measure that assesses financial capability.

In conclusion, the best measures for financial capability focus on the economic base of the local government. The best choice, may be the financial size requirement, which could be combined with the requirement not to have declared bankruptcy in the last five years to form a reasonable and simple fiscal component of the test.

c. Institutional Components

Because of the potential constraints on local governments, the financial test framework includes a set of possible institutional requirements that are intended to assess the ability of local governments to overcome constraints and to use their financial reserves to meet Subtitle D obligations. The following are among suggested institutional requirements:

- Council ordinance or resolution
- Contract of obligation
- Degree of flexibility in raising revenues or issuing debt

Council Ordinance or Resolution. A local government could be required to issue an ordinance or resolution pledging to provide funds for the required activity. These declarations may not necessarily be binding across future changes in administrations, and they may not override taxing

or expenditure limits. However, obtaining a reliable picture of local priorities is not easy; such judgments are by nature subjective. Ordinances and resolutions provide some assurance that an obligation is a high priority for the entity. This is particularly true if the resolution is given a public hearing prior to passage.

Further analysis is needed to determine whether an ordinance or resolution is preferable and to specify the appropriate wording of the requirement. However, because resolutions and ordinances are commonplace in local government, implementing such a requirement should be simple. Moreover, as discussed earlier, some states implementing the Subtitle D program already use resolutions and ordinances as options for providing financial assurance.

Contract of Obligation. Recognizing the limitations of resolutions and ordinances, the financial test could require local governments to enter into a formal contract pledging financial responsibility. This instrument is already used in one state (Tennessee) as a Subtitle D financial responsibility alternative. The contract could provide that the local government will forfeit allocations from the state or federal governments if those bodies have to fund an obligation in lieu of funding from the local government.

Clearly, this alternative is more stringent than the resolution or ordinance. However, it may be politically and administratively difficult to implement. States could be forced into difficult decisions on which allocations will be forfeited by the local government.

Degree of Flexibility in Raising Revenues or Issuing Debt. If ceilings exist on specific taxes (e.g., property taxes) or on taxes

across-the-board, the local government may be unable to raise funds for an obligation in a timely manner. Therefore, a financial test may include a provision that use of the test is prohibited if existing taxes are within (perhaps) 95 percent of the ceiling level. This approach, however, has a major drawback in that determining the proper percentage of the ceiling allowed would be very difficult.

In summary, the resolution or ordinance appears to be the best requirement addressing potential institutional constraints on local governments. Although less stringent than a contract, this requirement provides a degree of assurance that the obligation is a high priority, particularly if subjected to a public hearing. Moreover, it is a standard instrument that is simple to administrate.

**Combining Components To Develop a Local Government
Financial Test**

Each of the parts of the suggested local government financial test -- definition, fiscal measures, institutional requirements -- includes several principal options. Each of these options, in turn, present options in terms of the stringency of the test each represents. In combining components from each of the parts to formulate an overall local government financial test, therefore, States have numerous options in terms of the overall stringency of the test they wish to create.

In choosing from what is in effect a menu of options for constituting the overall test, States may want to evaluate a number of considerations, including:

- Degree of assuredness provided
- Availability to financially strong entities
- Conceptual and administrative simplicity

Inherent in the choice of options for the financial test is the relationship between stringency of the test and its ability to assure that funds will be available for the required activities. If a test is chosen that has stringent components (e.g., a test that requires a minimum level of general revenues, an unused debt capacity exceeding the obligation, and a binding contract), then it will be more likely to assure the availability of funds than a test with weaker components (e.g., a test that requires only a certain level of general revenues and a resolution). As the stringency of the test increases, however, the ability of local governments to use the test diminishes. The choices a State makes regarding the stringency of the test will reflect its efforts to balance the performance standard objectives of availability and flexibility.

The definition of a local government that is allowed to use the test is another way of determining the stringency of the test. If "local government" is defined as a general purpose government for financial test purposes, then the definition implicitly excludes special authorities from being able to use the test. However, because special authorities have financial characteristics similar to private firms (e.g., they have financial statements with similar information including net worth), a State may apply to them a financial test similar to that used for private firms under Subtitle C. Alternatively, because special-purpose units of government have a narrower and sometimes less stable base than general purpose entities, States may choose to be conservative and require them to acquire a financial assurance mechanism.

Simplicity is desirable for both local governments, which must demonstrate they have passed the financial test, and States which must

exercise judgment in administering the test. The degree of simplicity may in fact directly correlate with the degree of judgment required to determine whether specific local governments have passed the test. One approach to simplicity would be to limit to a few the number of factors included in the test. Another would be to specify precise performance thresholds for each factor or, for those factors which do not lend themselves to quantitative measures, to precisely specify the way in which a factor is to be addressed (e.g., by specifying a format for local legislative resolutions).

As discussed earlier, the components that are deemed best for the time being (acknowledging the need for further analysis) are a combination of a revenue size requirement, a requirement that the entity has not defaulted or declared bankruptcy in the last five years, and a political resolution or ordinance declaring that the obligation will be paid if encountered. This multi-criteria approach is similar to the approach used in other Agency financial tests. Moreover, the test could be very straightforward and easy to implement while still meeting the major objectives of the test.

4.6.5 Financial Test Based on Bond Ratings

The Agency reconsidered investment grade bond ratings on outstanding debt as a measure of the financial strength of local governments. A bond rating alternative would provide local governments with a low-cost financial assurance option and eliminate the need for the State to either develop a financial test for such entities, or to evaluate a local government's financial strength in terms of a financial test for private

firms. Moreover, a bond rating incorporates many financial and management variables that are analyzed by rating agencies in order to determine the likelihood that a debt issue will be repaid. Because an investment grade rating (BBB or above) indicates that the issuer is likely to repay the debt, it provides some degree of assurance, in an administratively simple manner, that a municipality will be able to fund its environmental obligations.

As discussed earlier, the Agency considered and rejected a bond rating alternative for municipalities owning or operating Subtitle C facilities.¹⁸ The Agency based its decision on a study of bond ratings in a major default period of 1929 to 1937.¹⁹ The study indicated that 78 percent of all defaulted municipal bonds and 94.4 percent of the dollar value of defaulted municipal bonds in the period were rated in the top two categories by both major ratings services (Standard and Poor's, and Moody's) prior to default. The Agency concluded from this evidence that municipal bond ratings tend to confirm financial distress rather than predict it, and bond ratings, therefore, would not provide assurance that a municipality would be able to provide funds for its Subtitle C obligations.

The Agency decided to reexamine municipal bond ratings as an option for financial assurance for MSWLFs for several reasons. First, since the 1929 to 1937 period examined by the Agency in 1981, government financial

¹⁸ Background Document for the Financial Test and Municipal Revenue Test: Financial Assurance for Closure and Post-Closure Care, U.S. Environmental Protection Agency, Office of Solid Waste, November 30, 1981, p. 134.

¹⁹ See George Hempel, The Postwar Quality of State and Local Debt, National Bureau of Economic Research, 1971.

management has become far more sophisticated and government financial reporting has become more standardized. Therefore, bond ratings based on improved financial information may be more accurate indicators of financial viability. Moreover, rating agencies have enhanced the sophistication of the ratings process to better evaluate municipal issues. Finally, in the wake of well-publicized bond defaults and municipal bankruptcies in the 1960's and 1970's (i.e., New York City and Cleveland), several analytical studies of the ability of bond ratings to predict financial distress have been performed in recent years. The Agency reviewed these studies to develop a better understanding of the degree to which the predictive ability of bond ratings has improved in the decades since the Great Depression.

After analyzing the available information, the Agency has decided that municipal bond ratings still do not provide sufficient assurance that an entity will be able to provide funds for Subtitle D obligations. First, recent studies are inconclusive as to whether bond ratings are accurate indicators of an entity's ability to pay for its environmental obligations. For example, a recent study compared a large sample of general obligation bond ratings with a variety of financial and demographic variables for each rated municipality.²⁰ The study showed that among municipalities that received very different bond ratings, only demographic variables such as employment rate and change in population were significantly different. Financial variables, including measures of

²⁰ Stephen R. Willson, "Credit Ratings and General Obligation Bonds: A Statistical Alternative," Government Finance Review, June 1986, pp. 19-22.

debt burden and level of fund balances, were not significantly different among differently rated municipal bond issues.

The Willson study indicates that bond ratings do not necessarily reflect the relative current financial position of municipalities.²¹ Instead, bond ratings appear to be based on assessments of the long-run viability of municipalities, which may be more relevant in assessing the likelihood of repayment of long-term bonds than evaluating current financial position. Demographic variables are important in determining the long-term viability of a municipality, thus they are likely to correlate better with bond ratings than with financial ratios. Moreover, the subjective judgments of the raters regarding the management of the municipality play a larger role in the determination of municipal bond ratings than in ratings of private firms; judgments regarding future viability may be unrelated to short-run financial measures.

Although variables such as demographics and management quality play a strong role in the viability of a municipality in the long-run, they may not reflect the ability of a municipality to provide funds to meet its obligations in the short-run. Therefore, because bond ratings correlate more closely with long-run variables than with short-run financial measures, they may not provide assurance that funds will be available for closure, extended post-closure care, or corrective action.

²¹ Other attempts to compare bond ratings and financial measures include: Carleton and Lerner, "Statistical Credit Scoring of Municipal Bonds," Journal of Money, Credit and Banking, November 1969, pp. 750-764; and Joseph T. Horton, Jr., "Statistical Classification of Municipal Bonds," Journal of Bank Research, Autumn 1970, pp. 29-40, as referenced in Foster, George, Financial Statement Analysis, Prentice-Hall, Inc., 1978. These studies have come up with similar results to the Willson study.

Another reason that bond ratings are not considered appropriate for financial assurance for MSWLFs is that in recent years many municipal bond issues have been insured by municipal bond insurance companies.²² These companies insure investors in the bonds against losses due to insolvency. Ratings on insured bonds reflect the financial strength of the insurer and not the municipality issuing the bond; thus an investment grade bond rating may not indicate the underlying financial viability of the municipality.

Finally, because bond ratings are specific to the terms and conditions of the particular debt issue, they may not reveal the overall ability of local governments to meet their environmental obligations in a timely manner. For example, in the wake of tax revolts and other political opposition to taxes, voters in many parts of the country have limited the authority of the local government to issue debt without voter approval. This trend may limit the ability of local governments to quickly obtain funds in the capital markets to meet environmental obligations even if existing debt is highly rated.

4.6.6 Cost and Availability of Financial Tests

The chief advantage of a financial test is that it allows the entity to demonstrate financial responsibility without having to pay for an assurance mechanism such as a trust fund or a letter of credit. The costs of a financial test will therefore entail only negligible reporting costs.

²² In 1986, for example, 19 percent of the dollar value of long-term municipal bonds were insured, compared to only 3 percent in 1980. See "\$26.2 Billion New Municipals Insured in 1986," The Bond Buyer, January 9, 1987, p. 1.

However, if an entity is required to obtain an auditor's opinion verifying the accuracy of financial data, and the entity has not otherwise been independently audited, the costs of obtaining such an audit could be substantial.

The availability of the test, as discussed earlier, depends on the design of the test and the stringency of its components. The test could be designed so that it is available to most local governments, or it could be stringent enough to be available to only the largest and financially strongest of entities.

4.7 GUARANTEES

States may consider allowing one entity to guarantee the obligation of another entity. Options such as guarantees offered by a parent or related firm, guarantees offered on the basis of a substantial business interest, and municipal guarantees may be desirable alternatives. As this section describes, States must ensure consistency with their corporate and insurance laws to design valid and enforceable mechanisms.

4.7.1 Features of the Mechanism

A guarantee is a promise by one party (the guarantor) to pay specified debts or perform specified obligations of another party (the principal) in the event the principal fails to satisfy those debts or obligations. There is a contract between the principal and a third party, creating the primary obligation, and a contract between the principal and the guarantor creating the guarantee, which supports the primary obligation. Generally, in regulatory programs, the primary obligation

would be a regulatory requirement or potential tort liability, rather than a contract. If the principal defaults on the primary obligation, the guarantor is liable to the third party to meet the obligation created by the guarantee.

If a State allows the use of a guarantee to provide financial assurance for closure, post-closure care, and corrective action for known releases at MSWLFs, the obligation between the principal (the owner or operator) and the State would be defined by the regulatory requirements. If the owner or operator of the MSWLF failed to perform the required activities, the guarantor could perform them or provide a specified dollar amount from which the State would direct the payment of the costs of carrying out the activities.

Both related firms and firms engaged in a substantial business relationship with the owner or operator of a MSWLF might be willing to provide guarantees. Related firms may be parent firms that own a controlling interest in the owner or operator, grandparent firms that own a controlling interest in a parent firm of the owner or operator, or affiliated firms that are controlled by a parent that also owns a controlling interest in the owner or operator. A "controlling interest" is usually defined in State corporate law as direct ownership of at least 50 percent of the voting stock of the subsidiary.

A firm that is engaged in a "substantial business relationship" with the owner or operator could provide a guarantee as an act incident to the business relationship. In general practice, a guarantee would be considered incident to a business relationship if it arises from and depends on existing business transactions between the guarantor firm and

the owner or operator. For example, a private company that uses a government-owned landfill to dispose of its solid waste may wish to guarantee financial assurance for the facility to ensure that its disposal needs continue to be met.

4.7.2 Use of Guarantees in Other EPA Programs

Under RCRA Subtitle C financial responsibility regulations (40 CFR 264.143, 264.145, 265.143, and 265.145), a corporate parent, defined as a corporation that directly owns 50 percent or more of the voting stock of the owner or operator, may provide a guarantee to EPA or the State as demonstration of financial assurance for closure and post-closure care of a hazardous waste management facility. Under 40 CFR 264.147 and 265.147 of the Subtitle C regulations, a guarantee given to any and all third parties who may suffer bodily injury or property damage from sudden or nonsudden accidental occurrences arising out of the operations of a hazardous waste management facility may be used to provide financial assurance for liability coverage. EPA has also proposed to allow a guarantee by the parent corporation of a hazardous waste facility to be used to provide financial assurance for corrective action (51 FR 37854, October 24, 1986). The UIC program also allows use of a guarantee for plugging and abandoning a well.

Most recently, the Agency proposed to allow owners and operators of underground storage tanks containing petroleum to use corporate guarantees provided by related firms and firms having a substantial business relationship with owners or operators as financial assurance for corrective action and third party liability (52 FR 12786, April 17, 1987).

EPA also proposed allowing the use of an indemnity contract, an instrument very similar to a guarantee, because the Agency believes that indemnities are presently being used in the petroleum industry for such purposes. There is little substantive difference, however, between guarantees by non-related firms and indemnities. The Agency, therefore, has not included a separate discussion of indemnities as instruments to provide financial assurance for MSWLFs.

4.7.3 Use of Guarantees in State Programs Surveyed

Several of the nine States surveyed allow the use of corporate guarantees. Louisiana and Illinois allow parent guarantees if certain financial criteria are met by the potential guarantor. California, under a regulation that allows the use of irrevocable trusts and other mechanisms approved by the State Department of Water Resources, has approved corporate guarantees if the corporation can prove that it is diversified and financially stable. New York, Oregon, and Wisconsin have similar provisions that potentially could allow use of a corporate guarantee if approved by the appropriate State agency on a case-by-case basis.

4.7.4 Key Provisions of Guarantees to Ensure Adequacy of Coverage

To ensure adequacy of coverage if guarantees are allowable mechanisms for demonstrating financial assurance, the State may wish to consider imposing the following requirements. One would be to require the corporation, partnership or other firm providing the guarantee to demonstrate either ownership interest in, or a substantial business

relationship with, the owner or operator for which the guarantee is being provided. If such a relationship between the guarantor and the owner or operator is not established, then the guarantor might be classified by State insurance regulations as an insurer, and would thus be unqualified to provide a guarantee unless he met State insurance provider qualifications. Also, if some business relationship is not established between the guarantor and the owner or operator, then the validity of the guarantee contract could be challenged in court in the event of the guarantor's bankruptcy. Such a challenge could be based on a lack of "identity of interest" which would suggest that the guarantor received no value for providing the guarantee. Value of the guarantee to the guarantor would be related to the guarantor's business relationship to the owner or operator.

To decrease the chance that a guarantor might enter bankruptcy, the State could also consider requiring a guarantor to demonstrate, through use of a financial test, that it has financial resources sufficient to undertake the guarantee of closure, post-closure, and corrective action costs. To ensure that funds paid by a guarantor go directly to the costs of the required activities, the State might require that, if an owner or operator fails to meet the obligation, the guarantor will pay the guaranteed funds into a standby trust fund. The State can then direct payment of costs from the trust fund as necessary to meet the regulatory requirements.

Finally, the State might wish to specify the wording of the guarantee to be certain that the instrument is legally binding and that it provides adequate financial assurance. Specified wording would also be helpful to

owners and operators who would then have no difficulty ascertaining that an instrument provided by a guarantor complies with State requirements.

There are several factors that a State should evaluate before allowing the use of a guarantee by municipalities or other local government entities. The State may wish to determine whether, under its State law, a city or other general-purpose government could provide a guarantee for a MSWLF owned by a separate entity such as a "special district" or "solid waste authority." Also, in the case of municipally-owned facilities, State law also may be reviewed to determine whether a local government could accept a guarantee provided by a customer of its facility.

4.7.5 Cost and Availability of Guarantees

The Agency believes that the costs associated with a guarantee would be minimal in most circumstances. If the guarantee is provided by a parent or other related firm on the basis of the corporate relationship, it is likely that no fee would be charged for the guarantee. If an unrelated firm with a substantial business relationship with the owner or operator is allowed to provide the guarantee, there is likely to be some required payment. The costs might be limited to the legal fees paid for preparation of the guarantee contract. A guarantor could require, however, that the MSWLF owner or operator provide collateral to support the guarantee. The required value of the collateral might be a percentage of, or equal to, the face value of the guarantee.

The requirement that the guarantor meet State specified financial criteria should not add significant costs so long as the criteria require

submission of readily available financial data. For example, a firm that submits data to the Securities Exchange Commission would have ready access to that information if it were required by a State financial test.

The availability of a guarantee will depend on the stringency of the requirements it must meet. If the financial criteria for the guarantor is stringent, availability will be reduced.

4.8 STANDBY TRUST FUND

Standby trust funds are only necessary when an independent depository is required. For example, under Federal law, all payments to a Federal agency or official must be deposited with the U.S. Treasury and cannot be earmarked for a specific use without reallocation (see 31 U.S.C. 3302). Therefore, to guarantee that the funds assured for a specific facility are directed to the costs of closure and post-closure care for that site, the Agency requires that a standby trust fund be established. If a State determines that an account can be established within its treasury into which funds drawn on the financial assurance mechanisms can be deposited and withdrawn without special action to pay the site-related costs, then such a State may use its treasury as the depository mechanism. Each State should examine its State law on the issue of earmarking funds in and appropriating funds from its general treasury.

A standby trust fund serves as a depository for funds collected from providers of financial assurance. The trust would receive funds from the financial assurance mechanism in the event that the owner or operator cannot meet his closure, post-closure care, or corrective action obligations. Such a trust would be necessary if the regulatory authority

cannot maintain direct control over the funds if they are deposited directly into the State's Treasury. The U.S. EPA requires standby trusts because funds deposited directly with the U.S. Treasury (e.g., payments by an issuer of a letter of credit to a firm that defaults on its obligations) can not be controlled directly by the EPA Administrator.

4.8.1 Features of the Mechanism

A standby trust fund is a depository, not assurance, mechanism that is used in conjunction with assurance mechanisms provided by third-party institutions, such as surety companies, guarantors, indemnitors, or issuers of letters of credit. The structure of a standby trust fund is the same as that of the trust fund (i.e., the grantor deposits funds to be managed by a trustee for the benefit of a beneficiary). The purpose of a standby trust fund used to demonstrate financial assurance for MSWLFs would be to provide a place for funds drawn on third-party assurance mechanisms to be held and managed by the regulatory authority for a particular facility's closure, post-closure care, and/or corrective action costs.

4.8.2 Use of Standby Trust Funds in Other EPA Programs

The standby trust fund mechanism is used in other EPA financial assurance programs where the U.S. EPA Regional Administrator is the beneficiary of funds drawn on financial instruments.

The Subtitle C closure and post-closure care assurance regulations require that a standby trust fund be established when an owner or operator establishes a surety bond or a letter of credit (40 CFR 264.143(b), (c),

(d); 264.145(b), (c), (d); 265.143(b), (c); and 265.145(b), (c)).

Similarly, the proposed Subtitle I corrective action and third-party liability assurance regulations require an owner or operator to establish a standby trust fund if he is using a guarantee, indemnity contract, surety bond, or letter of credit (52 FR 12786, April 17, 1986).

4.8.3 Use of Standby Trust Funds in State Programs Surveyed

Of the nine State programs studied, three require that a standby trust fund be established and used to accept deposits from providers of mechanisms such as surety bonds and letters of credit. The remaining States either require providers of mechanisms to make deposits into the State treasury or do not allow mechanisms that require deposits from third-party providers (e.g., performance bonds or insurance).

4.8.4 Key Provisions of Standby Trust Funds to Ensure Adequacy of Coverage

Because the standby trust fund is structurally similar to the trust fund mechanism, the key provisions of the trust fund mechanism are applicable to the standby trust as well. For example, the trust agreement should describe the responsibilities of the parties. In particular, the trust agreement should detail the trustee's responsibilities for trust fund management.

One feature unique to the standby trust fund, however, is the timing of its establishment. The standby trust fund could be required to be established either at the same time the assurance mechanism is established or not until it is needed as a depository for payments from the third-party instruments. Under both the Subtitle C and the proposed

Subtitle I programs, the owner or operator must establish the standby trust fund at the same time the assurance mechanism is established. The Agency believes that requiring the standby trust fund to be established along with the assurance mechanism provides a somewhat greater degree of assurance since there is no risk that payment under the assurance mechanism will be delayed due to lack of a depository mechanism.

4.8.5 Cost and Availability of Standby Trust Funds

The costs of standby trust funds are similar to the costs of trust funds. Typically, a trustee will charge a flat fee to establish the fund. Maintenance costs to cover the management of the assets of the trust are related to the balance of the trust fund. Until the standby trust is funded, the maintenance or management costs should be negligible because there are no funds to manage. After a standby trust is funded, the maintenance may range from 0.1 percent to one percent of the balance of the trust.

The Agency expects the costs of establishing and maintaining a standby trust to be minimal because, until the financial assurance mechanism is drawn on and the standby trust is funded, there will be no assets in the standby trust to manage and, therefore, no management fees.²³ States may, however, conclude that the additional assurance provided by having the trust fund established with the assurance mechanism is not worth the extra cost of creating the trust before it is actually needed. Should States opt in favor of requiring that standby trusts be

²³ Administrative fees for trust funds are usually proportional to the value of the trust and are paid at regular intervals throughout the life of the trust.

created only when needed to receive funds, the Agency does not believe that this should significantly impair the degree of certainty that funds will be available in a timely manner.

4.9 COMBINATIONS OF MECHANISMS AND COMBINED COVERAGES

In determining which mechanisms to allow for financial assurance for closure, post-closure care, and corrective action at MSWLFs, States may also wish to consider (1) whether to allow combinations of mechanisms to assure either the costs of closure, post-closure care, corrective action, or all three; and (2) whether to allow one mechanism to be used to assure closure, post-closure care, and corrective action costs or some combination of such costs.

Allowing combinations of mechanisms for each or all types of coverage required could provide flexibility and cost savings to owners and operators. For instance, there may be times when an owner or operator must obtain additional coverage as a result of an increase in a facility's cost estimate, but finds that the provider of his current financial responsibility instrument will not agree to expand his coverage. In such a situation, an owner or operator may wish to use another instrument to make up the difference rather than establish assurance for the entire estimate using another instrument and cancelling the original one.

The use of a single mechanism for all types of coverages may reduce somewhat the fees and administrative expense of financial assurance to owners or operators. Furthermore, combining coverage under a single mechanism should not in any way impair the adequacy of the coverage.

Under the Subtitle C closure and post-closure care requirements, trust funds, surety bonds, letters of credit, and insurance may be combined. Financial tests and corporate guarantees may not be combined with other mechanisms. For liability coverage, the financial test and the corporate guarantee may be combined with insurance, but they may not be combined with each other. The reason for this exclusion is to avoid double counting of assets. Since Subtitle C does not allow non-parent guarantees, the assets used by the guarantor (i.e., the corporate parent) to pass the financial test might also have been used by the principal (i.e., the owner or operator) in passing its financial test.

Under Subtitle I, however, all mechanisms may be combined with each other. The financial test and a guarantee, however, may only be combined if the financial statements of the owner or operator are not consolidated with the financial statements of the guarantor. Subtitle I allows the combination of the financial test and a guarantee because it allows use of non-parent guarantees and includes the non-consolidation of financial statements rule to avoid double counting of assets in the event that the guarantor is a corporate parent. States should consider including requirements similar to those of Subtitle I to prevent double counting of assets, if States choose to allow combinations of financial tests and guarantees.